DOCUMENT RESUME

ED 114 259 95 SE 018 800

AUTHOR	Disinger, John F., Comp.
TITLE	A Directory of Projects and Programs in Environmental Education. Third Edition.
INSTITUTION	ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C.
PUB DATE	Feb 75
NOTE	409p.; For earlier editions, see ED 071 881 and ED 086 558
AVAILABLE FROM	Information Reference Center (ERIC/SMEAC), Center for Science and Mathematics Education, The Ohio State University, 244 Arps Hall, Columbus, Ohio 43210 ($5.25)
EDRS PRICE	MF-$0.76 HC-$20.94 Plus Postage
DESCRIPTORS	Activities; *Directories; *Educational Programs; Elementary Schools; *Environmental Education; Instructional Materials; Objectives; *Program Descriptions; *Projects; Reference Materials; Secondary Schools; Universities
IDENTIFIERS	ERIC SMEAC

ABSTRACT

The third edition of this directory describes 296 current environmental education programs and projects in the United States. It is representative of an extensive array of efforts in environmental education, with an emphasis on school programs. The directory is divided into three parts; however, there is some variation in format from the preceding two editions. Part 1 contains only update reports of programs and projects described in the 1973 edition. Reports of efforts not included in the second edition are described in Parts 2 and 3. Part 2 describes 104 school-related projects and programs. Part 3 reports the environmental efforts of 75 universities, organizations, research centers, parks, and state plans. Each entry provides the following information: program title, project director--name and address, directory references (Part 1), objectives, location, facilities, activities, available materials and those needed, teacher preparation, evaluation, problems encountered, future plans, and information available through the ERIC system. Programs and projects are arranged alphabetically by state. The appendices include names and addresses of the state coordinators for environmental education. (BP)

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A DIRECTORY OF PROJECTS AND PROGRAMS IN ENVIRONMENTAL EDUCATION
THIRD EDITION

Compiled by

John F. Disinger

SE 018 800

ERIC Information Analysis Center for
Science, Mathematics, and Environmental Education
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February, 1975

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ERIC/SMEAC

ERIC is a national information system supported by the National Institute of Education for providing ready access to results of exemplary programs, research and development efforts, and related information that can be used in developing more effective educational programs. Through a network of specialized centers or clearinghouses, each of which is responsible for a particular educational area, current significant information relevant to education is monitored, acquired, evaluated, abstracted, indexed, and listed in ERIC reference publications. Through these reference publications any educator, anywhere in the country, has easy access to reports of innovative programs, conference proceedings, bibliographies, outstanding professional papers, curriculum-related materials, and reports of the most significant efforts in educational research and development, regardless of where they were first reported.

In addition, each clearinghouse produces bulletins, interpretive summaries, research reviews, and bibliographies. These products are made available by the ERIC system and are also announced in a separate yearly compilation.

The ERIC Clearinghouse for Science, Mathematics and Environmental Education is located at The Ohio State University, Columbus. Originally the center had responsibility only in the area of science education, and was named the Science Education Information Analysis Center (SEIAC). When responsibility for mathematics education was added, it became the Science and Mathematics Information Analysis Center (SMAC). In 1971 it was designated as the center for environmental education, and is now known as the Science, Mathematics, and Environmental Education Information Analysis Center (SMEAC).

This publication was prepared pursuant to a contract with the National Institute of Education, United States Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official National Institute of Education position or policy.

PREFACE TO THE THIRD EDITION

This third edition of the ERIC/SMEAC Directory of Projects and Programs in Environmental Education demonstrates some variations from the formats employed in its two predecessors:

* Projects and programs described in the Second (November 1973) Edition are reported here only as updates. Directors were asked only to supply current information, not to repeat information printed previously. These update reports, gathered during the summer of 1974, are contained in Part I of this edition. The user may find it appropriate to consult the Second Edition for more complete information. Updates are included for 166 of the 296 reported in the Second Edition.

* Reports of efforts not described in the Second Edition have been printed in Parts II and III of this edition. Part II contains 104 reports of school-related projects and programs, while Part III reports 75 efforts targeted at audiences broader than, or different from, elementary and secondary schools.

As the reader may note, some projects and programs proved difficult to classify on this basis.

* A comprehensive attempt was made to list with each report all current materials available through the ERIC system which are associated with each project and program. How the interested reader may gain access to these materials is described in the "Preface to the Second Edition," reprinted in this edition. It must also be noted that, because the ERIC system is decentralized, many of the documents listed were processed by Clearinghouses other than SMEAC, and that, because materials are constantly added to the ERIC document base, these listings are necessarily incomplete.

In soliciting reports for this edition, updates were requested from all directors of projects and programs reported in the first two editions. Also consulted were lists of federally-funded projects and programs, particularly under ESEA Title III and P.L. 91-516. Recommendations were requested from coordinators for environmental education associated with state departments of education across the nation. Names and addresses of these coordinators are listed in the Appendix.

Production of a directory such as this involves the efforts of a number of persons, both at ERIC/SMEAC and elsewhere. Those project and program directors who completed and returned questionnaires deserve special thanks, as do members of the state coordinator network. Special assistance and support were received from Mary Lynne Bowman, Herbert L. Coon, Cheryl L. Fuller, Linda S. Hemmler, Robert W. Howe, Robert E. Roth, Edith P. Santana, and Maxine R. Weingarth. Typing of the manuscript was completed by Norma V. Disinger.

Of particular interest to ERIC/SMEAC will be further information relative to projects and programs for which reports are included, and notification of the existence of other efforts which should have been reported. Hopefully, the next edition of this directory will be both more complete and more representative.

John F. Disinger
Compiler

February, 1975

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PREFACE TO THE SECOND EDITION

This publication represents a second effort on the part of ERIC/SMEAC to produce a directory of representative current environmental education projects and programs in the United States. As such, it is still an exploratory effort, incomplete and uneven, but representative of an extensive array of efforts in environmental education, stressing those related to schools. The first edition (October, 1972) contained 207 reports; this edition describes 296.

Several sources have been utilized in gathering information and materials for the directory. A generalized questionnaire was mailed to each environmental education project and program known to ERIC/SMEAC, with request for completion and return. Environmental education coordinators and supervisors at the state education department level were requested to identify outstanding projects and programs in their own and neighboring states; each program so identified was contacted, as were all efforts reported in the first edition of the directory. Also utilized were lists of efforts supported under Title III, ESEA, and P.L. 91-516, primary channels of federal funding for environmental education.

Each project and program for which a completed questionnaire was returned is described in the directory, even though a few (mostly among those funded under P.L. 91-516) are not school-related. No selectivity was exercised in inclusion of reports, other than that resulting from coordinator recommendations or listing on a funding roster. In some cases, responses indicated little or no change from the report printed in the first edition of the directory. For these, reports were reprinted in the format originally employed, rather than in the newer format.

Projects and programs which did not return completed questionnaires, but instead sent other responses, are listed in Appendix A, with annotations as to the nature of their responses. Appendices B, C, and D list projects and programs from which no response had been received as of November 23, 1973. Also given, in Appendix E, are the names and addresses of those persons functioning as members of SMEAC's network of state education department coordinators for environmental education. Some changes have taken place in the membership of that network since recommendations were received. Appendices appear in a separate volume.

Major change in format from the first edition has been the addition of an "ERIC Documents" section for each project and program which has materials available through the ERIC system. These materials have been abstracted in Research in

Education, and are generally available from:

ERIC Document Reproduction Service
P.O. Drawer O
Bethesda, Maryland 20014

Insofar as possible, such documents have been identified by ED numbers, and must be ordered by reference to such numbers. In some cases, materials are listed by SMEAC's SE numbers because processing into the central system had not been completed as this directory went to press. Persons wishing to order such documents must obtain the proper ED numbers from current issues of Research in Education in order to do so.

Projects and programs described in the body of the directory cover the gamut in all respects, from financially well-based efforts to what might be termed "shoestring" operations, literally conducted by one person in his spare time, and from "classical" nature study to "modern" interdisciplinary studies. Thus are reflected the fluidity of definition currently characterizing environmental education, as well as differences in levels of support accorded by various agencies, in various places.

There is little doubt that much of the information contained in this edition of the directory is already outdated, and more will be in a short time. A third edition is planned for Winter 1975.

Production of a directory such as this involves the efforts of a number of persons, both at ERIC/SMEAC and elsewhere. Those project and program directors who completed and returned questionnaires deserve special thanks, as do members of the state coordinator network. Special assistance and support were received from W. Ben Bohl, Cheryl L. Fuller, Linda S. Hemmler, Robert W. Howe, and Edwin L. Shay. Typing of the manuscript was completed by Norma V. Disinger.

Of particular interest to ERIC/SMEAC will be further information (updates, correction, etc.) relative to projects and programs for which reports are included, and notification of the existence of other viable efforts which should have been included. Hopefully, the third edition of this directory will be both more complete and more representative.

John F. Disinger and Beverly M. Lee
Compilers

November, 1973

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PART I:

Update Reports

Based on Reports in 1973 Edition

PROGRAM TITLE: ENVIRONMENTAL EDUCATION CENTER

DIRECTOR: None at present. Dr. Ward Tishler and Dr. Miriam Collins, Coordinators, University of Montevallo, Physical Education Department, Montevallo, Alabama 35115. (205)665-2521 Ext. 275

1973 DIRECTORY REFERENCE: p. 3.

Presently working a comprehensive program for Environmental Education for State of Alabama. A proposal was recently submitted to the U.S. Office of Education (Environmental General) through The Alabama Consortium for the Development of Higher Education. The name of the project is "Environmental Education Programs for Deans and Teachers in Colleges of Education, Curriculum Supervisors and Classroom Teachers in Alabama." Project has not been funded but work will continue through 1974 in an attempt to secure funds for this project.

-Ward Tishler

PROGRAM TITLE: ALABAMA ENVIRONMENTAL QUALITY ASSOCIATION

DIRECTOR: Miss Martha McInnis, Executive Director, Alabama Environmental Quality Association, P.O. Box 11000, Montgomery, Alabama 36111. (205)281-6474

1973 DIRECTORY REFERENCE: pp. 4-5.

Incorporated under Alabama laws as a non-profit organization, the Alabama Environmental Quality Association is the administrative arm of the Alabama Environmental Quality Council. The Associations's approach to "participatory democracy" is perhaps best exemplified through its work with local environmental leaders across the state. One of the AEQA's chief accomplishments has been the creation of nine Regional Environmental Quality Councils.

Primarily a citizen planning agency, the AEQA is involved in a myriad of service endeavors:

Master Plan. Using an environmental management systems approach, the Association has developed and written the Alabama Environmental Education Master Plan. The plan calls for one basic goal: the achievement of an environmentally literate population capable of making sound, environmental decisions. The desired results will come through emphasis upon communications, field service, program development, and financial assistance.

Clearinghouse. Through its communications branch, the Association is the main artery of environmental news dissemination in Alabama. Seeking to educate the public on environmental issues, the AEQA:

Writes and distributes news releases to the Alabama news media.

Publishes a monthly newsletter, EnvironNews, sent to environmental leaders throughout the state.
Maintains a film library on environmental quality, used for community programs.
Conducts surveys to assess the thinking of Alabamians on environmental issues.
Develops brochures illustrating ways to work for a better environment including how to organize reclamation centers and how to eliminate abandoned automobiles.

Governor's Awards Program. The Association annually sponsors the Governor's Environmental Awards Program to recognize outstanding environmental activities.

Liaison Work. The AEQA is the chain which links the state council with state agencies involved in environmental programs.

Future Work. The Association's projections for the years ahead are based on the state plan of environmental education. Among those plans are the following:

Establish a statewide Speakers Bureau to familiarize local community groups with current environmental issues.
Work for permanent recycling centers in communities throughthe state.
Assist and coordinate the implementation of community environmental education programs.
Develop a working relationship with the state's colleges, universities, junior colleges and trade schools offering environmental curricula.
Operate a resource service, linking areas of community need with the appropriate groups or agencies.

-M. McInnis

PROGRAM TITLE: TUCSON AUDUBON SOCIETY INSTITUTE OF DESERT ECOLOGY

DIRECTOR: Janine D. Hernbrode, Tucson Audubon Society,
3851 W. Red Wing Street, Tucson, Arizona 85704.
(602)299-2062

1973 DIRECTORY REFERENCE: p.16.

The Audubon Institute of Desert Ecology is an annual six-day program of field studies in the Sonoran desert. The next Institute will have two sessions, May 2-4 and 9-11, 1975. The emphasis of the program is on how earth and life forms relate rather than on classification or identification. Two daily field trips in the areas of geology, entomology, ornithology, botany, or mammalogy are led by qualified star members. The program is presented by the Tucson Audubon Society in cooperation with the University of Arizona which offers either graduate or undergraduate credit for completion of the Institute.

Participants who need not be members of the Audubon Society must be at least eighteen years old and in good health.

Accomodations are at the Tanque Verde Guest Ranch, located in the foothills of the Rincon Mountains 25 miles east of Tucson, Arizona. Cost of the Institute is $60 plus a guest ranch lodging and meals fee based on the participants need for guest ranch facilities. Total cost for the six-days (registration fee, meals, and lodging) is $183.50. For the six-day Institute plus meals and lodging for the four day recess period the cost is $326.50. If the participant chooses to provide his own lodging he may register for a meals-only status at a cost of $101.50 including the registration fee. Prices include tax and gratuity.

The faculty for 1975 will include: H. Wesley Peirce, Geologist, Arizona Bureau of Mines, University of Arizona (Geology); E. Linwood Smith, Faculty Research Associate, Arizona State University (desert birds); Floyd G. Werner, Professor of Entomology, University of Arizona (insects and their relatives), Tien Wei Yang, Research Associate in Biological Sciences, University of Arizona (desert plants); Charles L. Hanson, Curator of Birds and Mammals, Arizona-Sonora Desert Museum (mammals and reptiles).

-J. D. Hernbrode

PROGRAM TITLE: ARKANSAS' ENVIRONMENTAL EDUCATION PROJECT

DIRECTOR: Dr. Bessie B. Moore, Arch Ford Education Building, Little Rock, Arkansas 72201. (501)371-2061

1973 DIRECTORY REFERENCE: pp. 21-2.

ERIC DOCUMENTS:
1. The Farkleberry Cookbook in Environmental Education. SE 018 629
2. Man and Environment. TV Series. SE 018 630

PROGRAM TITLE: THE JOHN MUIR INSTITUTE'S URBAN EXPERIENTAL ENVIRONMENTAL STUDIES CURRICULUM PROJECT

DIRECTOR: David B. Sutton and N. Paul Harmon, John Muir Institute, 2118-C Vine Street, Berkeley, California 94709. (415)548-0525

1973 DIRECTORY REFERENCE: pp. 23-4.

The John Muir Institute for Environmental Studies (JMI) is a non-profit public foundation engaged in identifying and funding environmental research and development projects. In 1972, JMI determined that a K-12 urban focused environmental education program is needed. JMI was aware that many fine individual projects and materials had been developed. It felt, however, that a systematic and comprehensive program (designed much as the best modern reading, mathematics and social studies programs were) would be a major contribution to the environmental literacy of future generations of Americans.

The Goal:
JMI plans to develop a series of supplemental kits each focused on a different urban site such as a power plant or a sewage disposal plant. When the curriculum is completed there will be approximately six kits per grade level. JMI plans to make these kits nationally available. It is hoped that the first high school level kits will be available by late 1975. Kits for the primary grades will be published over the next few years.

The kits comprising the JMI Environmental Studies Curriculum will have the following characteristics:
1. The curriculum is based on an integrated environmental studies approach.
2. The curriculum is concerned with urban problems. The student is taught to view the city as an ecosystem and to apply general ecological concepts to specific urban problems.
3. The curriculum is concerned with generalizable concepts, skills and attitudes. The overall goal of the curriculum is not to teach the student facts -- it is to teach him to think about environmental problems.
4. The instructional technique is individualized, experiential, and project based.
5. The curriculum is based on a comprehensive kindergarten-high school design.
6. Each kit is open-ended. Existing or future materials can easily be developed into projects. Thus, a kit serves to integrate many different existing environmental studies booklets, magazine articles, filmstrips and texts into a single instructional system.

Curriculum Analysis:
JMI began its curriculum development project with a detailed analysis of the possible instructional goals of an environmental studies curriculum. A comprehensive list of environmental studies

concepts was developed. Each concept was then placed into an instructional sequence. This effort has been documented by JMI's "Environmental Studies Concept Hierarchy" Chart. The Chart is in a preliminary draft stage; it will be revised after JMI receives feedback from experts in environmental studies and from students during field tests.

Each concept (instructional objective) identified on the hierarchy chart was further developed into two test items that will be used in JMI's evaluation effort. The expected uses of the hierarchy analysis include:
1. Curriculum development
2. Orienting teachers and students
3. Comparison and evaluation of programs

In addition to the *Environmental Studies Concepts Hierarchy*, JMI is also working on an *Analysis and Problem-Solving Skills Hierarchy* and an *Environmental Studies Affective Objectives Hierarchy*.

Curriculum Design and Development Effort:

During 1974, JMI has been engaged in the development and field evaluation of a pilot version of a kit. The kit chosen for the demonstration was designed around a visit to a steam-electric power plant site.

In 1974-75 JMI expects to finish the entire high school curriculum package, including a Power Plant Kit, a Waste Water Treatment Plant Kit, a Trash Dump Kit, a Supermarket Kit, a Transportation System Kit, a Government Agency Kit, and City Street Kit.

The Current Evaluation Effort:

All of the materials developed by JMI will be tested and revised until their effectiveness can be guaranteed. The first classroom testing was undertaken in May of 1974 in the Los Angeles public schools. The testing was carefully monitored by JMI. Five separate curriculum goals are being independently evaluated:
1. General system effectiveness
2. Specific project effectiveness
3. Environmental concepts taught
4. Thinking skills taught
5. Attitudinal changes

Although the evaluation of each of these variables will be conducted separately, JMI has always conceptualized its environmental studies curriculum as an integrative whole. A particular project is only considered complete when tests show that it teaches not only specific facts, but also concepts, thinking skills and appropriate attitudes.

During 1973-74 this project received the support of the Office of Environmental Education (General Project Grant: OEG-0-73-5450).

-D. B. Sutton and N. P. Harmon

PROJECT TITLE: PROJECT MER (MARINE ECOLOGY RESEARCH)

DIRECTOR: George J. Castellani, 75 Santa Barbara Road, Pleasant Hill, California 94523. (415)937-4100 Ext. 368

1973 DIRECTORY REFERENCE: p. 25-7.

PUBLICATIONS: Guide to Marine Ecology Research
Marine Ecology Research Resource Units, Grades 7-9

Project MER (Marine Ecology Research) is designed to provide ecology instruction to life science students in secondary schools, primarily in the East Bay of the San Francisco Bay Area. The program consists of eight to nine weeks of instruction, including extensive reading on the San Francisco Bay-Delta-Estuarine ecosystem coupled with a series of in-school laboratory investigations. Students attend two instructional sessions at the Point Molate Marine Laboratory, located at Point Molate, where intensive individualized instruction is offered. During the first four hour session, students learn the various techniques for analyzing many of the physico-chemical and biological parameters of Bay waters. The second session utilizes students as investigators participating in several ongoing research studies involving the local area. Subsequent to their training, students establish local field stations along the Bay-Delta-Estuary and systematically generate data which is stored in the local computer facility.

In-service training for teachers utilizing the Guide to Marine Ecology Research is provided by the staff. This Guide and the accompanying Teachers' Supplement were prepared by local teachers.

During 1974-75 the project is attempting to measure the growth of positive attitudes of students toward the marine environment and their cognitive growth utilizing the Marine Science Inventory (Affective) and the Marine Science Inventory (Cognitive). The research design included the use of control classes.

This project is presently supported by an ESEA Title III grant. Previous support included grants from the Rosenberg Foundation of San Francisco, the National Science Foundation, and the Contra Costa County Board of Supervisors.

In addition to the materials listed above, copies of the tests will be available for use in late spring of 1975.

-G. Castellani

ERIC DOCUMENTS:

1. Handbook of Techniques and Guides for the Study of the San Francisco Bay-Delta-Estuary Complex, Part 1. Monitoring Techniques for the Measurement of Physico-Chemical and Biological Parameters. ED 086 482
2. Part 2. Key to the Phytoplankton Phyla and Genera. ED 086 483
3. Part 3. Key to the Invertebrates. ED 086 484
4. Part 4. Key to the Coastal Marine Fisheries of California. ED 086 485

5. Part 5. Keys to the Freshwater and Andromous Fishes of California. ED 086 486
6. Part 6. Key to the Common Fishes of San Francisco Bay. ED 086 487
7. Marine Ecology Research, Resource Units, Grades 7-9. Draft. SE 018 507
8. Guide to Marine Ecology Research...A Curriculum for Secondary Students. SE 018 508

PROGRAM TITLE: CONSERVATION EDUCATION SERVICE, CALIFORNIA DEPARTMENT OF EDUCATION

DIRECTOR: Rudolph J. H. Schafer, Consultant in Conservation Education, 721 Capitol Mall, Sacramento, California 95814. (916)445-0361

1973 DIRECTORY REFERENCE: pp. 30-32.

No update report received.

ERIC DOCUMENTS:
1. A Study: Conservation Education and the Western Textbook. ED 073 918
2. Ekistics: A Guide for the Development of an Interdisciplinary Environmental Education Curriculum. ED 076 4381
3. Conservation and Environmental Education in the Western States. 2nd Edition. SE 018 100
4. Western Regional Environmental Education Council. Resource Guide. SE 018 181

PROGRAM TITLE: COMMUNITY EDUCATIONAL RESOURCES

DIRECTOR: John K. Gessel, 6401 Linda Vista Road, San Diego, California 92111. (714)278-6400

1973 DIRECTORY REFERENCE: pp. 33-4.

PUBLICATION: Making Greater Use of Your Community Resources (available from address above.)

PROGRAM TITLE: ORANGE COUNTY ENVIRONMENTAL EDUCATION COUNCIL

DIRECTOR: Nathaniel Lamm, Orange County Department of Education, 1250 South Grand Avenue, Santa Ana, California 92711. (714)834-3976

1973 DIRECTORY REFERENCE: p. 35.

The Orange County Environmental Education Council is now primarily concerned with identifying, helping, and recognizing student environmental endeavors.

Other activities include:
1. Maintaining an environmental education resource center.
2. Providing tours of unique man created or natural environmental study areas.

-N. Lamm

PROGRAM TITLE: ENVIRONMENTAL EDUCATION: A TEACHER'S GUIDE WITH INQUIRY AND VALUE SEEKING STRATEGIES

DIRECTOR: Dr. Wilford L. Hall, Santee School District, P.O. Box 220, Santee, California 92071. (714)448-2510

1973 DIRECTORY REFERENCE: p. 41.

At the current time the guide is available to and used by teachers in the district on an individual basis. There has been no specific direction given beyond the availability of the guide unless requested by the teacher. No more copies of the guide are being produced at this time.

-W. L. Hall

PROGRAM TITLE: THE MOUNTAIN VIEW CENTER FOR ENVIRONMENTAL EDUCATION

DIRECTOR: Dr. David Hawkins, 1511 University Avenue, Boulder, Colorado 80302. (303)443-2211 Ext. 8421.

1973 DIRECTORY REFERENCE: pp. 44-6.

No update report received.

ERIC DOCUMENTS:
1. Yesterday I Found... ED 072 874
2. The Informed Vision: Essay on Learning and Human Nature. SE 018 661

PROGRAM TITLE: SADMESS (STUDENT ASSISTED DEVELOPMENT OF MATERIALS FOR ENVIRONMENTAL AND SOCIAL STUDIES)

DIRECTOR: Irving Morrissett and Suzanne Wiggins Helburn,
Social Science Education Consortium, 855 Broadway, Boulder,
Colorado 80302. (303)443-1370

1973 DIRECTORY REFERENCE: pp. 47-8.

Since the termination of the SADMESS project, the SSEC has been somewhat inactive in the field of environmental education. We do continue to respond to information requests about the SADMESS project specifically and about social science aspects of environmental education in general Curriculum materials dealing with the social aspects of environmental problems are reviewed in our Social Studies Curriculum Materials Data Book regularly. The publications developed by the SADMESS project can still be purchased through the Consortium.

-Karen B. Wiley

ERIC DOCUMENTS:
1. Boulder Experiments Scrapbook. A Description of How the Student and Professional Staff of the S.A.D.M.E.S.S. Project Planned and Put On a Community Environmental Fair. ED 081 707
2. SADMESS. Student Assisted Development of Materials for Environmental and Social Studies. Final Report. ED 083 072
3. Boulder Experiments: An Environmental Fair. Profiles of Promise 24. ED 091 260

PROGRAM TITLE: BALARAT OUTDOOR EDUCATION CENTER

DIRECTOR: Royce D. Forsyth, Supervisor, 1521 Irving Street,
Denver, Colorado 80204. (303)266-2255

1973 DIRECTORY REFERENCE: pp. 55-7.

Balarat activities are designed for Denver Public School students, Kindergarten through adult education. Each school may send approximately 20% of its membership to the Balarat site for a one-day excursion each year.

Activities are designed to create an environmental awareness, appreciation and a sense of stewardship for our natural resources. Activities are interdisciplinary but can focus on any of the subject disciplines. They are designed to extend and enrich the objectives of the regular curriculum and the particular objectives of the participating class.

During the late 60's a private trust attempted to donate approximately 650 acres of land, the location of our present center, to various school districts. In December of 1968, the Denver Public Schools accepted the gift of land and the condition that the school district spend $500,000 on site improvements. In the fall of 1969, one especially equipped bus began taking students to the Balarat site for one-day studies. Various summer programs have been conducted at Balarat. Presently, we have three especially equipped buses that take approximately ninety children per day, or 16,000 children per year, to the Balarat site for one-day field experiences.

The Balarat Council, a private, non-profit corporation, was established to advise and assist the Balarat program. The Council has remained active and is presently cooperating in the extension of Balarat activities into overnight experiences.

Facilities at the Center now include a caretaker's home and an instructional building plus all of the supporting utilities.

Approximately 16,000 Denver Public School students, Kindergarten through grade 12 participate in the one-day field experience at Balarat. The majority of these students are coming to Balarat to supplement and extend their science or environmental learning programs. Other classes represent foreign language classes. These classes have developed special guides in both Spanish and French and accompanying music to be played on our buses. All subjects areas use the site.

In addition, Balarat has an Eco-Seminar, a one semester class of high school seniors from each of Denver's high schools. These students have a full-time study program at Balarat, serving as teacher assistants two days a week and research assistants three days a week.

Balarat has developed a field guide, an urban environmental studies guide, and other incidental materials to use in our programs.

The Master Planning system devised for Balarat has been continually revised and virtually abandoned. Planning is now the responsibility of the office and given only minimal attention. Other district-wide problems such as court ordered desegregation, drop in pupil enrollment, and the rapidly changing nature of the citys population, have caused outdoor education to receive only minimal policy making attention. Hopefully, the political climate within the school system is changing and there now can be more attention given to environmental and outdoor education.

A development plan has been written and presented to the administration. Hopefully, it will be presented to the Board of Education in the next sixty days for their consideration. The development plan proposes to continue the one-day field excursions and add overnight residence program for sixty pupils per week, to be increased annually in units of approximately thirty students.

Materials:
1. Balarat Trail Guide (limited quantity).
2. Denver Urban Environmental Studies Guide - Grades K-6. (Copyright 1972) $1.50 each. Order from: Department of Materials Control, Denver Public Schools, 414 Fourteenth Street, Denver, Colorado 80202
3. Alpenglow (Copyright 1974) Student written magazine. $2.00 single copy; $1.50 - ten or more copies. Order from: Balarat Council, 1521 Irving Street, Denver, Colorado 80204

-R. D. Forsyth

PROGRAM TITLE: IDEAS EXCHANGE

DIRECTOR: Lawrence M. Schaefer, President, Environmental-Population Education Services, Inc., 21 Merritt Street, Hamden, Connecticut 16511. (203)777-1436

1973 DIRECTORY REFERENCE: pp. 64-67.

The Office of Environmental Education (HEW) has awarded a grant to E-P Education Services to develop curriculum and audio-tutorial materials in land use planning. The project directors will be Harry O. Haakenson and Larry Sch[illegible]efer. It is anticipated that the materials developed in the fall and winter will be pilot tested in the Spring.

Services that E-P Education Services provides to educators throughout Connecticut are:
1. Environmental and Population Education Curriculum Library - the library contains over 500 documents (mostly annotated in bibliography at conference) that are available for free loan to teachers for one month. Teachers may also arrange for a visit to our office to utilize the entire collection. Also available on microfiche are all documents listed in ERIC Bibliography. A microfiche reader is available in the office for teacher use.
2. An Environmental and Population Film (16mm) Library - 16 films were donated to E-P Education Services by the Department of Health, Education and Welfare for use by Connecticut teachers. All will be available for a nominal cost for week long rental. For more information on rentals contact our office.
3. Eco-Kit - a set of six audio-tutorial units designed by Dr. Harry Haakenson, Co-ordinator of Environmental Studies at Southern Connecticut State College. The A-T units are designed as introduction to the six topics as well as examples for

teacher as to the potential of this technique. The topics include fundamentals of environment, air pollution, water pollution and population (2 units). Each integrates tapes (avg. length - 20 min.) with guide sheets as well as 35 mm slides with two tapes. The units can and have been adopted to any level. More details and purchase information are available from our office.

4. Teacher's Resource Manual - an Introduction to Population, Environment and Society - this teachers resource manual, written by Larry Schaefer, is designed to assist teachers in presenting to secondary school students, a short integrated unit on population growth and the environment in the context of other dimensions of human society. The manual is a collection of over 50 activities and exercises accompanied by background information for the teacher in addition to charts and illustrations for classroom use. The manual is designed for easy removal of pages, charts, and illustrations for duplication by the classroom teacher. The manual is available for purchase.

5. A three screen sound slide production designed to sensitize students to environment issues is available. The production runs thirteen minutes with 240 slides. The musical background and slides act as an introduction to the state of American environmental affairs. The slide show, appropriate for junior and senior high school, is designed for opening discussion. Harry Haakenson conceived and directed the development of the slide show.

-L. Schaefer

ERIC DOCUMENTS:
An Introduction to Population, Environment, and Society. A Teachers' Resource Manual. ED 090 063

PROGRAM TITLE: DEVELOPMENT OF CURRICULUM MATERIALS FOR USE IN FORMAL AND NON-FORMAL EDUCATION ACTIVITIES

DIRECTOR: John F. Reiher, State Supervisor of Science and Environmental Education, Townsend Building, Dover, Delaware 19901. (302)678-4885

1973 DIRECTORY REFERENCE: pp. 70-2.

This project, administered by the State Department of Public Instruction in Delaware, is a continuing project focusing on the needs of all schools K-12 in Delaware in the area of Environmental Education. Activities have and will include:

1. Environmental Education courses sponsored by the Department of Public Instruction for college credit and dealing with classroom activities and field studies.
2. Development and dissemination of a K-12 environmental curriculum that will stress not only the environment, but the integration of the total curriculum with environmental education.

3. Live-in environmental education experiences for teachers at Yosemite National Park, California (1 week experience) and local camps in the area (weekend experience).

These activities as well as information dissemination are developed around the needs of teachers in Delaware as stated in The Status of Science Teaching in Delaware - Sept. 1974.

-J. F. Reiher

ERIC DOCUMENTS:

1. Special Education Master Key and Index for Environmental Curriculum Materials. ED 073 927
2. Environmental Curriculum Materials Level I (K-1). ED 073 928
3. Environmental Curriculum Materials Level II (2-3-4). ED 073 929
4. Environmental Curriculum Materials Level III (5-6). ED 073 930
5. The Geology of Delaware Coastal Environments. ED 093 691
6. Energy Relationships. ED 096 130
7. Parasites, Competition, and Predators. ED 096 131
8. An Imaginary Trip Through the Marsh. ED 096 135
9. Trash. ED 096 139
10. What Are the Effects of Ecology? ED 096 133
11. Water Pollution. ED 096 137
12. Testing Water for Bacterial Pollution. ED 096 140
13. Succession - Change in Communities. ED 096 134
14. Man and His Environment (Environmental Workshop). ED 096 138
15. U.S. Population Growth. ED 096 142
16. Measuring Populations, Part 1. ED 096 143
17. Measuring Populations, Part 2. ED 096 144

PROGRAM TITLE: POPULATION ENVIRONMENT PROJECT

DIRECTOR: Thomas S. Hounsell, R.D. #2, Box 340A, Hockessin, Delaware 19707. (302)239-7754

1973 DIRECTORY REFERENCE: pp. 73-5.

Address Correction only information received.

PROGRAM TITLE: OUTDOOR LABORATORY

DIRECTOR: Catharine Y. Bonney, Acting Director of Instruction, Newark School District, 83 E. Main Street, Newark, Delaware 19711. (302)731-2216

1973 DIRECTORY REFERENCE: pp. 76-8.

Newark's Outdoor Laboratory Program is entering its ninth year of operation. A Teacher-Naturalist is on full time employment to provide an experience in outdoor education for all students in grades one through five. This person engages in orientation activities for the class, and provides suggestions for post activities for students participating in the program.

All fourth grade children are taken to the local Museum where they can examine artifacts that relate to their environment, and also visit the nature trail surrounding the site.

Three schools in the district have their own Outdoor Education Center or Nature Trail; one, a mature woods; another, a running stream; and the third, an urban park area.

During the past summer, an experiment was tried providing several students in grades five through seven a daily experience in outdoor living. For three weeks these students were taken to a nearby State Park and here they engaged in activities relating to all of the disciplines.

Many of the schools in the district have participated in Residence Camping Programs. During this past year, a committee examined programs that have been in operation and made recommendations for establishing a Residence Camping Program that would involve all of the district's thirteen elementary schools, especially the fifth graders in the schools.

In keeping with this latter thrust of outdoor education, there is a possibility that the scene of action for Newark's Outdoor Education Program will shift from its present site, which for the most part is a city park, to a nearby newly established state park. It is also hoped that here students will be provided a longer time slot permitting them to spend half a day, or a day, engaging in a variety of activities. It is felt that this will establish a firmer base for the anticipated Residence Camping Program for all fifth grade students.

-C. Bonney

PROGRAM TITLE: DEVELOPMENT AND TRIAL OF INTERDISCIPLINARY SECONDARY SCHOOL ENVIRONMENTAL MATERIALS

DIRECTOR: James L. Aldrich, Senior Associate, Conservation Foundation, 1717 Massachusetts Avenue NW, Washington, D.C. 20036. (202)265-8882

1973 DIRECTORY REFERENCE: pp. 81-2.

The project staff felt that there were many unique and rewarding aspects to the Case Study Project funded under P.L. 91-516. Individually we are committed to the preparation of additional units similar to those that have been developed.

-J. Aldrich

PROGRAM TITLE: NATIONAL AERONAUTICS AND SPACE ADMINISTRATION'S EARTH RESOURCES EDUCATION PROGRAM

DIRECTOR: Frederick B. Tuttle, Director of Educational Programs, Office of Public Affairs, National Aeronautics and Space Administration, Washington, D.C. 20546

1973 DIRECTORY REFERENCE: pp. 83-5.

The National Aeronautics and Space Administration (NASA) has published for school use in the general field of Earth observations from space a book entitled *Skylab Experiments, Vol. 2, Remote Sensing of Earth Resources*. This publication discusses the instrumentation of those Skylab experiments which are concerned with environmental problems. Its listing is as follows:

> U.S. National Aeronautics and Space Administration *Skylab Experiments, Vol. 2, Remote Sensing of Earth Resources; Information for teachers, including suggestions on relevance to school curricula*. Washington, D.C., U.S. Government Printing Office, 1973. 83 p. $1.25. EP 111.

Two other education-oriented publications about NASA's work in Earth observations are under development; one for social studies teachers is by the Northeastern Environmental Education Development System (NEEDS), a consortium of the State Departments of Education of the nine Northeastern states; the other is being undertaken by the University of Utah and deals with such subjects as landform/geology, vegetation, water features, agriculture and forestry, urban areas, and transportation.

Also planned for publication in fourteen to sixteen months is a booklet on the results of the Earth observation experiments both from ERTS and Skylab, along with miscellaneous leaflets on Earth observations.

-F. B. Tuttle

ERIC DOCUMENTS:

1. Space for Mankind's Benefit. ED 077 671
2. Spaceship Earth. A Look Ahead to a Better Life. ED 093 601
3. Skylab Experiments, Volume 3, Materials Science. SE 017 788
4. Skylab Experiments, Volume 5, Astronomy and Space Physics. SE 017 789
5. Skylab Experiments, Volume 7, Living and Working in Space. SE 017 790
6. Powerful TV Satellite Prepared for Launch. SE 018 644

PROGRAM TITLE: NATIONAL PARK SERVICE, NATIONAL CAPITAL PARKS, LIGHTSHIP CHESAPEAKE

DIRECTOR: Thomas N. McFadden, Sr., 1200 Ohio Drive SW., Washington, D.C. 20242. (202)426-6869 or 6867

1973 DIRECTORY REFERENCE: pp. 88-91.

Factors effecting the environmental studies program offered at the Lightship Chesapeake are: staff time distribution, decrease in funding levels and generally all those other adjustments that seem to accompany class periods.

Changes in the elementary program reflect the above circumstances and are in response to the major constructive criticism received from both students and teachers regarding participation in that program: that there is simply not enough time in a single day for students to receive maximum benefit from their shipboard experience. The elementary program for 74-75 has been revised so that elementary students will spend two, rather than one, day at the Lightship Chesapeake complex. The schedule will include the same environmental concepts and principles considered for study, but the first will be a more intensive orientation to an aquatic environment, using the ship as a vehicle as it compare with an urban environment. The first day will include navigation work in the pilot house, a discussion of energy sources in the engine room and model engines, knot work, plus a longer sampling period on the small craft with sampling equipment constructed by the students in the classroom. The second day will include the same station rotation as before (History of the Potomac, Sources of Water, Water Pollution Studies), but the periods will be longer. This will allow for more laboratory work and more indepth plankton and food chain studies. During that second day, the classroom teacher will have one hour in which to involve the students in an activity of her own design. Also, rather than students rotating through stations which are staffed with Lightship personnel, the

Lightship staff member will take a group through the entire series. This will allow for more personal interaction and the capability to adjust the program for a particular group. The second day students are aboard, they will remain in their same groups with the same staff person. The new structure will allow for more student and teacher involvement in the program, plus a greater latitude of study for the class.

For the High School River Study Program, the number of river sampling trips aboard the tug Chick-a-dee will be three rather than the previous four. If a group is interested in a particular pollution problem and requests additional field work time, that work will be involved with other National Capital Park facilities than the Lightship. For example, water quality and microorganism studies at Kenilworth Aquatic Gardens, swamp and marshland studies at Roosevelt Island or Piscataway. Terrestrial environmental studies at Rock Creek Park. The Lightship has also received a request from the D.C. School Without Walls, requesting a series of internship programs aboard ship that would allow students to receive academic credit for their projects aboard ship. Possible study areas include electronics, biology, video tape work, engineering and environmental studies. The first semester will involve ten students.

A word about manuals: Due to time and the experimental nature of the first semester with the environmental study programs, the only sections of the elementary manual that were rewritten were the student manual and the first section (Sea and Anchor Detail) of the teacher manual. At the end of this semester we will reexamine the entire program and at that time revise the entire manual.

-T. McFadden

ERIC DOCUMENTS:
Elementary Teacher's Resource Manual, Lightship Chesapeake, 1973-1974. ED 086 501

PROGRAM TITLE: PROJECT GROW (formerly Critical Seeding and Stabilization - Phase II)

DIRECTOR: Mrs. Irene Morris, Science Resource Teacher, Brookland Elementary School, Michigan Avenue and Randolph St., N.E., Washington, D.C. 20017. (202)832-0353

1973 DIRECTORY REFERENCE: pp. 92-3.

Our project, Critical Seeding and Stabilization - Phase II, which had been initiated at the old Brookland Elementary School, has been completed. It has received recognition by the Presidential Merit Award and the Mayor's Award for a More Beautiful National Capitol.

This year Brookland Elementary School has moved into a new physical plant designed around the new Open Space School concept of education.

Many of the same kinds of studies which were conducted at the old location will be performed again by the children at the new school site. They will landscape the grounds, planting evergreens and taking care of the Pyracontha, Quiniperus and Dogwoods. Present grassy areas will be reseeded as necessary and ivy has been planted for effect. Tests of the soil and studies of the use of mulch and fertilizer to improve soil conditions will be conducted by the children. Hopefully, hundreds of bulbs and many seeds will be planted this spring.

The entire project will be done with the emphasis upon Math-Science. Metric measurements will be incorporated into the program and such tasks as the leaf sizes and shapes will be utilized to teach the metric system.

Total involvement will be a key element. This year, we have pre-kindergarten through seventh grade and we hope to add an eighth grade next. Workshops will be conducted for the teaching staff and a soil conservationist will be available as necessary to work with the children. The integration of teacher workshops and student participation will enable the school to do both indoor and outdoor projects.

-Irene Morris

PROGRAM TITLE: WAR ON RATS

DIRECTOR: James E. Murphy, 1114 9th Street, N.W., Washington, D.C. 20001. (202)629-5447

1973 DIRECTORY REFERENCE: pp. 94-6.

The War on Rats Project, which is Federally funded, exists to eradicate rats in the District of Columbia. This project has many components. There is an education and information unit which is geared towards making people in the community more aware of the conditions which are conducive to rats; the clean-up unit which removes solid wastes from premises and alleys within the target areas; the housing unit, of the Department of Economic Development, which makes surveys and issues notices for housing violations and the Vector Control Division (baiting unit) which treated 297,926 premises with rodenticides. The Project's concentration in areas of blight has reduced the rat infestation in those areas by more than 50%. Overall, the Project has helped to reduce the rat population throughout the city.

-J. E. Murphy

PROGRAM TITLE: DESOTO ENVIRONMENTAL LEARNING LABORATORY

DIRECTOR: William S. Stanko, 420 East Gibson, Arcadia, Florida 33821. (813)494-4133

1973 DIRECTORY REFERENCE: pp. 99-101.

The DeSoto County Environmental Learning Laboratory (ELL), operated in conjunction with the DeSoto Middle School, is an innovative approach to teaching the Science of Ecology. Referred to by the students as the Outdoor Classroom, the ELL is truly a classroom without walls.

Instruction in the ELL provides the student with a true "hands on" learning experience in the real world. Students explore and interact with nature while learning about the plant and animal life indigenous to the area. Emphasis is place upon the complex and delicate balance of nature and the role of each and every living thing in this balance. This is accomplished by investigating the various eco-systems that exist in the area, such as the Oak Hammock, Wet Lowlands, Flood Plains, etc. The role of each organism in a particular eco-system is stressed, including such things as the importance of green plants as the only natural food factories, the role of decay organisms in renewal of soil nutrients, the necessity of insects for plant reporduction, the function of herbivores in the food chain, and the purpose of predators are but a few examples. Students are made aware of the disasterous effects that can occur when the eco-system is disrupted. Finally, the role of man as the top predator and ultimate consumer is stressed, together with his unique ability to alter his environment.

Throughout the program the students are made aware of the complex interrelationship between man and his environment. Present ecological problems resulting from unwise land development and use, together with the accompanying environmental pollution are considered. The overall goal of the project is to develop in the student a high degree of environmental awareness as well as an environmental ethic. It is hypothesized that only through full understanding and appreciation of man and his environment together with a deep sense of responsibility toward nature, will our future leaders (today's students) be able to make the wise decisions necessary to save our environment from total destruction.

-W. S. Stanko

PROGRAM TITLE: BROAD SPECTRUM ENVIRONMENTAL EDUCATION PROGRAM

PROJECT MANAGER: Marjorie Ebersbach, Center for Environmental Learning, 705 Avocado Avenue, Cocoa, Florida 32922.
(305)636-6543

1973 DIRECTORY REFERENCE: pp. 102-4.

BSEEP is based on the premise that environmental problems are exacerbated by man's lack of knowledge and understanding of his physical and social surroundings. Environmental learning materials covering a range of grade levels (K-12), crossing a number of disciplines (physical science, biology, social studies, language arts, math, music, art), calling for a variety of student activities (field observations, interviews, simulations) and employing both traditional and inquiry-oriented teaching strategies were developed by 40 classroom teachers to contend with this cognitive shortage.

Learning materials were field tested in regular classrooms and were found to produce significant changes in student achievement. These changes, measured by cognitive test, were certified by a local statistician and verified by an out-of-state team of validators.

The elementary materials, conceptualized through the themes of similarities/differences, interaction/interdependence, and change/adaptation, are divided into primary (K-3) and intermediate (4-6) packages. Each package contains 60 non-graded student activity and teacher guides centering on active inquiry into the environment and development of basic ecological understandings.

Detailed learning activities, student resources, student performance measurements and teacher background materials are found in the variety of secondary learning modules. Four environmental units investigate the cause and effects of biological, physiological and sociological change that occurs in ecosystems. Three learning modules explore the relationship between the environment and local government, technology and responsible human behavior. Two teacher resource units cover the subjects of the automobile and energy and power.

All learning materials can be seen in demonstration classrooms, and all interested parties are encouraged to arrange visits. The Project also provides professional services to those school systems wishing to adopt any portion of the materials. Training is provided for implementing materials and monitoring their use.

-M. Ebersbach

ERIC DOCUMENTS:
1. Teacher's Environmental Resource Unit: Consumer Resources Idea Manual. ED 067 300

2. Teacher's Environmental Resource Unit: Industry: Iron/Steel and Pulp/Paper. ED 067 301
3. Teacher's Environmental Resource Unit: The Automobile. ED 067 302
4. Teacher's Environmental Resource Unit: Energy and Power. ED 067 303
5. Social Studies Resource Units. ED 067 304
6. The Curious Entanglement of Law, Politics, and the Environment. ED 068 339

PROGRAM TITLE: ENVIRONMENTAL STUDIES CENTER "CURRICULUM MODIFICATION THROUGH ENVIRONMENTAL STUDIES"

DIRECTOR: Jay Jarrett, Martin County Schools, 205 South Indian River Drive, Jensen Beach, Florida 33457. (305)334-1262

1973 DIRECTORY REFERENCE: pp. 111-2.

Planned activities for this, our final year under the original operational grant:

1. Final revision and testing of materials and field activities for K-8.
2. Submitting these materials and activities for validation.
3. Design and production of twelve or more synchronized tape-slide presentations on environmental concepts for grades K-8.
4. Development of audio-visual testing vehicles for elementary students.
5. Development of new field activities in fresh water and terrestrial environments to augment those previously developed for the marine environment.
6. Development of suitable programs for gifted students and EMR students.
7. Development and operation of marine environment study programs at the high school level.
8. Inclusion of our program of environmental studies in the curricula of Martin County Schools.

-Jay Jarrett

PROGRAM TITLE: ENVIRONMENTAL EDUCATION

DIRECTOR: Carla Palmer, Education Division, The Florida Audubon Society, P.O. Drawer 7, Lake Sybalia Drive, Maitland, Florida 32751. (305)647-2615

1973 DIRECTORY REFERENCE: pp. 113-4.

Our program is currently operating via a grant from USOE, DTEE. We have been funded to conduct EE workshops for teachers, community members, and children. We will also develop multimedia teaching materials in the spring of '75 on urban systems, energy systems, and endangered species. We produce a monthly newsletter of EE teaching activities, news events and recently published bibliography and audio visual aids.

-C. Palmer

PROGRAM TITLE: ENVIRONMENTAL EDUCATION IN THE DADE COUNTY PUBLIC SCHOOLS

DIRECTOR: Harriet Ehrhard, 1410 N.E. Second Avenue, Miami, Florida 33132. (305)350-3506

1973 DIRECTORY REFERENCE: pp. 118-124.

Environmental Education programs in Dade County have been funded for continuation at the same level as in the previous year. CURES, Center for Urban Research in Environmental Studies is now totally funded through local sources, and will continue to provide educational opportunities in the area of urban study.

Numerous workshops for teachers are planned within the next few months. One will be held at the Environmental Education Center the third Wednesday afternoon of every month. Two full-day workshops are planned for Shark Valley and two for Long Pine Key within Everglades National Park. The CURES Staff will have a one-day in-service session to supplement the assistance provided for each teacher immediately previous to participation in the program. Teachers are required to attend the workshop(s) appropriate for selected activities.

Many secondary schools are offering a full year of ecology or environmental science while others are using one or two of the quinmester courses along with other science courses to provide a full year of science credit.

-Harriet Ehrhard

ERIC DOCUMENTS:
1. Man and His Environment: To Perceive and to React: Language Arts: 5111.13. ED 065 871
2. Your World and Welcome to It, Science (Experimental): 5314.03. ED 079 141
3. Human Ecology, Science (Experimental): 5365.60. ED 086 522
4. Life Science Through Field Experiences, Science (Experimental): 5311.14. ED 092 358
5. Human Ecology and the Health Dangers, Health Service Aide: 8007.03. ED 093 612

PROGRAM TITLE: SECONDARY SCHOOL ENVIRONMENTAL EDUCATION CURRICULUM GUIDE

DIRECTOR: Dr. Robert H. McCabe, 5940 SW 73rd Street, South Miami, Florida 33142. (305)274-1213

1973 DIRECTORY REFERENCE: p. 128.

ERIC DOCUMENTS:
Man and Environment for Secondary Schools: A Curriculum in Environmental Studies for High School. ED 086 473

Man and Environment for the Intermediate Grades: A Curriculum Guide for Environmental Studies for Grades 4-8. ED 097 233

PROGRAM TITLE: COMMUNITY LEADERS' TRAINING IN ENVIRONMENTAL STUDIES: TITLE I, MEA 1965 PROJECT

DIRECTOR: Rodney F. Allen, 426 Hull Drive, Florida State University, Tallahassee, Florida 32306. (904)644-5769

1973 DIRECTORY REFERENCE: pp. 129-31.

During the first year of operation this project will train 150 to 200 adult community leaders in the Tallahassee, Florida area to use a local institution, the Tallahassee Junior Museum, for environmental education. The Junior Museum is an outdoor facility with 40 acres on a large lake, with buildings to house collections and natural habitat animal areas surrounding the property.

Adult leaders will be selected from diverse community groups, ranging from early childhood educators and Scout leaders to senior citizens groups. The project staff will conduct 30 one-week workshops for five to eight persons each. Each workshop will produce a 15 page booklet of environmental education activities suitable for the program of the group which the adult community leaders represent (i.e., Girl Scouts, 4H, Boys Club, Senior Citizens, etc.).

During the project's second year, we tentatively plan to produce a 20 minute color, 16mm film and to refine a six hour environmental studies workshop packet for adult community leaders.

-R. F. Allen

PROGRAM TITLE: NATURE'S CLASSROOM - OUTDOOR EDUCATION

DIRECTOR: Henry Verges, Principal, Nature's Classroom, Route 1, Box 396, Thonotosassa, Florida 33592. (813)986-2089

1973 DIRECTORY REFERENCE: pp. 132-3.

In addition to our on-going program, we are presently involved in a resident Pre-Deliquent program. This will be our second year in operation. The project is being funded by the Law Enforcement Assistant Act, LEAA, and by local monies. A total of thirty students are assigned at any given time, fifteen boys, fifteen girls. The students arrive on Monday marnings and remain on campus through Friday noon. Their ages range from nine years through fifteen years of age, and they are selected from throughout the county.

The teaching staff consists of two teachers, one Case Counselor, one part-time Reading teacher and five Court Counselors who work the evening and midnight shifts. The academics such as Reading, Arithmetic, Science, etc. are covered during the morning hours with Outdoor Education activities the rest of the day.

There are at least two adults with the students at all times. Our main thrust is toward providing the students with opportunities for them to modify their unacceptable behavioral attitudes. This is done in a non-threat relaxed atmosphere. The students are housed in two large dormitories. We also have a cafetorium. The students are responsible for the appearance of the grounds and their dormitories. They have simple chores to perform. Often times they may volunteer as teacher assistants for our ongoing program.

Campouts and cookouts are part of their regular activities, once they have been properly planned and discussed. The students also participate in environmental projects, such as re-forestry (planting of trees), soil erosion problems, and caring for wildlife. One evening a week the students go on an off-campus activity.

-Henry Verges

PROGRAM TITLE: FERNBANK SCIENCE CENTER

DIRECTOR: Dr. Lewis S. Shelton, Fernbank Science Center of the DeKalb County Board of Education, 156 Heaton Park Drive N.E., Atlanta, Georgia 30307.

1973 DIRECTORY REFERENCE: pp. 137-9.

Listed below are environmental education activities that will be carried out by the Fernbank Science Center Staff during the year.

LIFE SCIENCES

1. The teaching of over 60 different one hour programs dealing with various aspects of environmental education for grades K-12 and for students in special education classes.
2. The teaching of two advanced courses for high school juniors and seniors, each course lasting one quarter.
3. Advising and assisting classroom teachers in developing outdoor classrooms and curricula content for individual school campuses.
4. Advising and assisting teachers, principals and PTA groups in developing landscape design plants for individual campuses so as to most effectively use them for outdoor instructional programs.
5. Conducting afternoon and weekend field trips for teachers visiting areas of ecological and environmental significance.
6. Maintaining an extensive collecting of native Georgia reptiles both for instructional purposes and for public viewing.

PHYSICAL SCIENCES

1. Teaching of some 57 different programs, 11 of which involve direct laboratory experiences in the various aspects of environmental education for grades 2-12.
2. Teaching of some six programs designed specifically for special education students.
3. Teaching four advanced independent study courses for high school junior and senior students in specific content areas of environmental education.
4. Conducting afternoon and weekend in-service field trips for teachers to areas which are environmentally significant.
5. Media production on topics on environmental importance which are integrated with the science curriculum.
6. Supervision of independent study topics and science fair projects on topics in environmental education.

-Kay Davis
Administrative Coordinator
for Special Projects and
Supportive Instructional Areas

ERIC DOCUMENTS:
(Fernbank Science Center Environmental Activities). ED 089 952

PROGRAM TITLE: ENVIRONMENTAL EDUCATION FOR GUAM SCHOOLS

DIRECTOR: Dave Hotaling, Consultants' Office, O'Hara Street, Agana, Guam 96910. 772-8553

1973 DIRECTORY REFERENCE: pp. 140-41.

The Environmental Education for Guam Schools Project was approved for Title III funding in July 1971 and got underway at the end of the following month. A Task Force (steering committee) of 15 interested citizens was formed by invitation and from time to time has contributed input to the operation of the Project. The Project Director, Mr. Dave Hotaling, formerly a high school biology teacher, made a research trip to the Mainland in November 1971 that included interviews with several curriculum experts for the advisory position of General Consultant, soon to make a two-week visit to Guam. In the Spring term of 1972, the University of Guam's well-qualified Biosciences Division offered a course on the ecology of Guam to elementary teachers. Twelve of the teachers who completed this course (which is now a fixture at the University) became the nucleus of the group which subsequently taught the curriculum developed by the Project. This latter, on the recommendation of the General Consultant, Dr. Ernest Burkman, Director of Florida State University's Education Research Institute, and with the permission of Rand McNally, was adapted from the Life Science portion of the Science Curriculum Improvement Study - developed by the University of California, Berkeley - an eminently successful activity-oriented Mainland program. Four of our teacher/naturalists adapted the Teachers' Guides for Guam.

We are now in the second year of testing the revised materials in two pilot schools, Mongmong/Toto and Tamunig. Project teachers attend a two-day workshop prior to the opening of school, and fortnightly in-service meeting through the year to discuss feedback and plan future activities.

Organisms are collected and cultured for the Project classrooms, currently 52 of them, by a teacher/naturalist with the cooperation of the Department of Agriculture. The majority of high school biology teachers on the Island are interested in a program by which they would, in turn, take a year out of the classroom to do the collecting and culturing of organisms for Project students. The outdoor environment is emphasized and teachers are encouraged to take field trips, on and off campus. A nature trail has been laid out adjacent to each pilot school. Garden plots also have been prepared. From all reports, the students, teachers, and principals involved are enthusiastic about and rewarded by the program and the Evaluator's recommendation is that it both continue and expand. The curriculum emphasizes only positive, tangible aspects of ecology. Several photographers have submitted slides for inclusion in a series of Nature Guides presenting different facets of Guam's rich natural environment, e.g., Coral Reef Flat, Strand, Limestone Forest, Savanna. The approved Project Proposal provides for a logical follow-up at the secondary level wherein more mature students can deal with the abstractions involved in environmental problems. The long range objective of the Project is "to graduate citizens who are knowledgeable and conscientious about environmental concerns of the Island and the rest of the World."

We maintain contact with many environmental education activities, especially on the Mainland, and have established mutually beneficial working relationships with similar efforts in Hawaii, Samoa, and the Trust Territory.

The year '73-'74 was the third year of Federal funding, which must be supplanted in subsequent years by local funds. It now seems a feasible procedure to fund one grade at a time, beginning with first, over the next six years, perhaps two classes per grade in each of our 25 elementary schools. The Director of Education has declared a moratorium on curriculum expansion until further notice, so the Project is, as a result of an historical accident, currently in limbo.

-D. Hotaling

ERIC DOCUMENTS:
1. Environmental Awareness in Guam Elementary Schools. SE 018 298
2. Organisms, Teachers Guide, Grade One. Life Science for Guam. SE 018 583

PROGRAM TITLE: PACIFIC AND ASIAN AFFAIRS COUNCIL WORLD AFFAIRS PROGRAM

DIRECTOR: Norman Geschwind, University of Hawaii, 2004 University Avenue, Honolulu, Hawaii 96822. (808)941-5355

1973 DIRECTORY REFERENCE: pp. 142-3.

The environmental education activities sponsored by the Pacific and Asian affairs Council have been limited due to financial stringencies. We have unsuccessfully tried for grants during the academic year 1973-74.

Participating high school students in the PAAC program, have selected "OCEANIC THRESHOLDS, VISIONS OF THE SEA" as the program theme for 1974-75.

The emphasis of our program is on student initiated, student planned inter-school conferences. Eleven conferences have been planned for 1974-75. The topics for discussion at the conferences will relate to the overall theme. Since the conferences are initiated by the students, no definite programs are available at this time.

-N. Geschwind

PROGRAM TITLE: FOUNDATIONAL APPROACHES IN SCIENCE TEACHING - FAST

DIRECTOR: Francis M. Pottenger, III, University of Hawaii, University Laboratory School, 1776 University Avenue, Honolulu, Hawaii 96822. (808)948-7863

1973 DIRECTORY REFERENCE: pp. 144-7.

Over the past year the Foundational Approaches in Science Teaching (FAST) project has been installed in schools in Guam and Micronesia, and the neighbor islands of the State of Hawaii. Teacher training on Maui, Kauai, Hawaii, and Oahu was supported by grants from the Governor's Office on Environmental Quality Control and other local private agencies. The staff is continuing to work on the refining of the third level of FAST materials which should be complete in the Spring of 1975. An overview of the project is still the only material available outside the State at the present time.

-F. M. Pottenger

PROGRAM TITLE: OFF CAMPUS ONE WEEK WORKSHOP IN CONSERVATION AND ENVIRONMENTAL EDUCATION CONDUCTED ANNUALLY AT THE LAKE CASCADE 4-H CAMP

DIRECTOR: Dr. Donald J. Obee, 1910 College Blvd., Boise, Idaho 83725. (208)385-1411

1973 DIRECTORY REFERENCE: pp. 149-50.

Those wishing copies of the task cards we use in some of our exercises, should write to Vern Fridley, Workshop Coordinator, U.S. Forest Service, 324 25th Street, Ogden, Utah; he will be happy to honor their requests. Mr. Fridley is Regional Director of Environmental Education of the Intermountain Region of the U.S. Forest Service.

DESCRIPTIVE PUBLICATION: "Donnelly Environmental Education Workshop," Journal of the Idaho Academy of Science, 9:2 (1973), 71-2.

-D. J. Obee

PROGRAM TITLE: ENVIRONMENTAL SCIENCE LEARNING PROJECT

DIRECTOR: Dr. Musa Qutub, Department of Geography and Environmental Studies, Northeastern Illinois University, Bryn Mawr at St. Louis, Chicago, Illinois 60626. (312)583-4050 Ext. 735, 789.

1973 DIRECTORY REFERENCE: pp. 155-6.

The Environmental Science Learning Project staff has conducted ten workshops in various states for State Departments of Education. Teachers and administrators from all over the state attended each workshop. As a result of these workshops, teachers developed their own teacher guide and learner guide for environmental education for their own schools. These guides included environmental activities based on the Motivated Self Learning Model.

-Musa Qutub

ERIC DOCUMENTS:
1. Environmental Reference Series. Earth and Environmental Studies. Part I. ED 072 969
2. Environmental Reference Series. Earth and Environmental Studies. Part II. ED 072 970
3. Environmental Reference Series. National Ecology Centers. ED 072 971
4. Environmental Reference Series. Conservation and Wildlife. ED 072 972

PROGRAM TITLE: ENVIRONMENTAL PLANNING WORKSHOPS FOR COMMUNITY LEADERS-WILL COUNTY APEX-URBAN SIMULATION/GAME

DIRECTOR: Ted F. Andrews, Dean, College of Environmental and Applied Sciences, Governors State University, Park Forest South, Illinois 60466. (312)563-2211

1973 DIRECTORY REFERENCE: pp. 169-70.

Program no longer in operation.

-J. J. Gallagher, Director
Environmental Education
Leadership Development
Project (CEAS)

PROGRAM TITLE: UPPER MISSISSIPPI RIVER ECO-CENTER

DIRECTOR: Dennis Etnyre, R.R., Thomson, Illinois 61285. (815)259-3282

1973 DIRECTORY REFERENCE: pp. 171-2.

PUBLICATIONS: Environmental Education: An Interdisciplinary Approach for the Intermediate Level. Environmental Education Curriculum Guide for K-8. Bibliography of Environmental Education Materials.

The Upper Mississippi River ECO-Center project funded in the Thomson Unit District #301 under Title III, ESEA is an exemplary environmental education program serving the seven school districts in Carroll County, Illinois. The major objective is the development of a comprehensive environmental education program for students and citizens of Carroll County.

The Center's staff of three are involved in the following curriculum reform activities:

1. Field Experiences: day field programs are provided for 5th and 6th grades during the school year. The staff also leads experiences for other grades, and conducts overnight camping sessions. In two years there have been over 5000 student field exposures.
2. In-service training sessions have been provided for all 4th, 5th, and 6th grade teachers. Over 330 teachers have received training.
3. Resource Development: several outdoor areas in the county have been utilized for field trips including the 80-acre Bluffville Outdoor Education Site owned by the Thomson District.
4. Reference Center for teacher and student use has been developed including books, pamphlets, and A-V and field equipment.
5. Curriculum materials produced include Bibliography and Environmental Education Materials, Curriculum Guide K-8, Teachers Guide to Fifth Grade Environmental Education, and Educational Resource Directory.
6. Dissemination: newsletters are sent to area teachers. Other efforts include speaking engagements, educational conferences, news articles, and radio programs.
7. High School Operation Awareness Course: academic credit canoe-camping, backpacking courses are held locally. Objectives include: recreation skills, biological studies, environmental impact studies, decision making safety and first aid, and a conservation work project.
8. Evaluation: objectives are continuously evaluated. Knowledge and attitude tests have been developed with evaluation showing statistically significant gains. The project has received the National Pacesetter Award for being nationally validated as an outstanding innovative project worthy of adoption/adaption.

-D. Etnyre

ERIC DOCUMENTS:

1. Upper Mississippi River ECO-Center Environmental Education Project. First Year Report, Project Year 72-73. ED 093 529
2. Teacher's Guide to Fifth Grade Environmental Education. ED 096 085

PROGRAM TITLE: ENVIRONMENTAL STUDIES PROGRAM

DIRECTOR: Craig E. Nelson, Poplars 438, Indiana University,
Bloomington, Indiana 47401. (812)337-9485

1973 DIRECTORY REFERENCE: pp. 177-9.

The Environmental Studies Program is a cooperative undertaking of the College of Arts and Sciences of Indiana University at Bloomington and the School of Public and Environmental Affairs (SPEA). SPEA was instituted early in 1972 and a number of existing programs were transferred to the new school. Among these was the Environmental Studies Program which had been in existence since 1971 as an interdisciplinary program in the College of Arts and Sciences.

At the undergraduate level, the Environmental Studies Program offers an Environmental Studies Certificate which is available to all undergraduate students in the University, the Environmental Studies major for all students in the College of Arts and Sciences, and the Environmental Policy and Environmental Health Management concentrations for students seeking a Bachelor of Science in Public Affairs degree and the Environment Concentration for students seeking an Associate of Science Degree from SPEA.

At the graduate level, the Environmental Studies Program offers the Environmental Policy concentration in the Master of Public Affairs degree, the Dissertation Minor in Environmental Studies, and the newly instituted Master of Science in Environmental Science degree.

The program consists of two types of courses--interdisciplinary courses taught by program faculty and courses in standard academic departments taught by the regular faculty of those departments. Nearly all of the departmental courses have been developed recently in response to student demand and the needs of the program. Non-University based professionals are brought in for seminars and class sessions. Their presentations are usually on topics of current interest or topics which compliment academic subjects.

The general purposes of the program include the development of a new kind of professional who combines a knowledge of environmental problems and possibilities for solutions with knowledge of policy formulation and administration. The Environmental Studies Program serves as the primary bridge between the science disciplines and the School of Public and Environmental Affairs, particularly for purposes of curriculum and degree program development and evaluation.

-C. Nelson

PROGRAM TITLE: ENVIRONMENTAL EDUCATION WORKSHOP (INDIANA DUNES NATIONAL LAKESHORE) BAILLY HOMESTEAD ENVIRONMENTAL STUDY AREA

DIRECTOR: Superintendent, Indiana Dunes National Lakeshore,
RR 2, Box 139A, Chesterton, Indiana 46304. (219)926-7561

1973 DIRECTORY REFERENCE: pp. 180-3.

During this year, the Bailly Homestead Environmental Study Area has been expanded to include the Bailly family cemetery which dates from 1827. The Bailly Homestead Environmental Study Guide has been revised to reflect the extension of the area. Supplementary materials have been developed to further general environmental education objectives, including an overview of the Indiana Dunes National Lakeshore for teachers and a series of short pamphlets for both visitors and school children.

Four Environmental Education Workshops held this year have used the Bailly Homestead Environmental Study Area (and materials listed in the 1973 ERIC/SMEAC Directory) and the West Beach Area, permitting participants to compare and contrast an inland environment (Bailly) and a shoreline/dunes environment (West Beach), both found within the Indiana Dunes National Lakeshore.

Future plans include a two-day workshop during the state-wide Teachers Institute to acquaint teachers with the five major areas within the Lakeshore that are available for environmental study, and with the materials that have been developed. Also planned are follow-up workshops for teachers who have gone through the basic two-day workshop, and workshops designed to meet the special needs of secondary educators, such as a workshop on geology of the Indiana Dunes.

New Materials:

"Indiana Dunes National Lakeshore --An Overview" (7 pp.)
Dunes Glimpses series (all 4 pp.)

1. The Bailly Homestead Area: A Brief History
2. The Detective Story Underfoot .
3. Man's Misunderstood Friends: Snakes of the Indiana Dunes
4. Spring Wildflowers (Seasonal publication)
5. Animal Territories: Invisible Boundaries
6. Indiana: Where is its Northern Boundary
7. The Railroads: Arteries from the East
8. 'Reading' Animal Tracks
9. Miami and Potawatomi - Indians of the Dunes
10. Test Your Dunes I. Q.

Materials that can be purchased:

Geology for the Public: A Field Guide to the Lake Michigan Shore in Indiana, by John R. Hill, Department of Natural Resources Geological Survey Guidebook, Indiana Geological Survey, 611 North Walnut Grove, Bloomington, Indiana 47401. $1.00.

ERIC DOCUMENTS:
Bailly Homestead Study Guide for Environmental Education.
ED 086 503

PROGRAM TITLE: INNER-CITY RESIDENT OUTDOOR SCHOOL

DIRECTOR: Dr. Magdalene A. Davis, Indianapolis Public Schools, Education Center - Room 501G, 120 East Walnut Street, Indianapolis, Indiana 46204. (317)266-4442

1973 DIRECTORY REFERENCE: pp. 185-7.

The Indianapolis Public Schools' Curriculum Division has been conducting resident environmental education weekly programs at Camp Towaki at Bradford Woods, Martinsville, Indiana in the spring and fall.

This facility, owned and operated by the Campfire Girls, has been made available to the schools for 39 weeks a year so all schools will be eligible to use it.

I. P. S. Environmental Center has been granted Historical Registry status recently so restoration and use of this facility will be shared by the schools and community groups for the purpose of fostering environmental education opportunities.

-M. A. Davis

PROGRAM TITLE: DEPARTMENT OF NATURAL RESOURCES, BALL STATE UNIVERSITY

DIRECTOR: Dr. Clyde W. Hibbs, Chairman, 2000 University Avenue, Muncie, Indiana 47306. (317)285-7161

1973 DIRECTORY REFERENCE: pp. 190-1.

The Department of Natural Resources, Ball State University, has moved from the Cooper Science Complex to Lucina Hall. The new location provides facilities for the Departmental office, nine faculty members, and a graduate assistant. In addition, a separate room is provided for duplicating, equipment, research, faculty lounge, darkroom, and an environmental education materials center.

Recently 5600 sq. ft. of floor space in Lucina Hall was approved for use by the Department as classrooms and laboratories. One laboratory will be developed for Water and Air Resources and a second area will be developed as a laboratory for Soil and Mineral Resources.

Natural Resources courses are an integral part of the general studies program at Ball State University with more than 1000 students representing many disciplines enrolled each year in the introductory course. The Department offerings now include approximately twenty courses which have been developed specifically for the Natural Resources curricula. Students from a variety of disciplines enroll in these courses. The newest addition to the curriculum is an option in Natural Resources Interpretation for students electing an undergraduate major in Natural Resources.

The departmental staff consists of eight full-time faculty positions and one person teaching on a temporary part-time basis. All faculty members are qualified and are usually involved in teaching the introductory environmental course. In addition special areas of expertise include soil, water, minerals and energy, resource management, interpretation, and environmental education.

A special effort is being made to provide students with opportunities to gain first-hand experiences as an integral part of their college experiences. These include working with federal resource agencies such as the Forest Service and the Soil Conservation Service. Others gain practical experience working with local and state environmental agencies, industry, and private organizations.

Consideration is being given to developing the Natural Resources curricula in a number of areas including air resources, outdoor recreation, and environmental education.

-C. W. Hibbs

PUBLICATIONS: Enlisting Educational Instructions in Adult Environmental Education Efforts.

PROGRAM TITLE: TOTAL ENVIRONMENT EDUCATION

DIRECTOR: Glenn R. Linnert and Richard N. Flatt, New Albany-Floyd County Consolidated School Corporation, Administration Building, P.O. Box 140, New Albany, Indiana 47150.
(812)945-6681

1973 DIRECTORY REFERENCE: pp. 192-3.

The Total Environment Education project of the New Albany-Floyd County School Corporation will accomplish the following during the 1974-1975 school year:

1. Training of all secondary teachers in the corporation in environmental concerns and teaching technique for a multidisciplinary approach.
2. Preparation and dissemination of a booklet of innovative classroom activities for grades 1-6, each keyed to the Indiana Environmental Guidelines.
3. Preparation and dissemination of a teacher-training packet designed to aid other school systems in training teachers as to environmental concerns.

-G. Linnert, R. Flatt

PROGRAM TITLE: ENVIRONMENTAL STUDIES PROGRAM (ENVIRONMENTAL STUDIES INSTITUTE)

DIRECTOR: Dr. William R. Eberly, Manchester College, College Avenue, North Manchester, Indiana 46962. (219)982-2141

1973 DIRECTORY REFERENCE: pp. 194-5.

Six seniors graduated with the Environmental Studies major in 1973 and sixteen in 1974. A new course in Environmental Philosophy was approved and will be offered for the first time in the spring of 1975. During 1973-74 a conference on Environmental Ethics was sponsored by the Environmental Studies Institute, as well as a conference on Population Education Materials. We continue to explore ways of incorporating environmental education methods in the training program for student teachers.

-W. R. Eberly

PROGRAM TITLE: SELF-EARTH ETHIC: A LIFE-CENTERED K-12 CURRICULUM GUIDE FOR ENVIRONMENTAL EDUCATION

DIRECTOR: John W. Hart and Jessie M. Turner, 801 Elks Road, Richmond, Indiana 47374.

1973 DIRECTORY REFERENCE: pp. 196-8.

The authors of the SEE (Self-Earth Ethic) series have entered into an agreement with the Interstate Printers and Publishers, Inc., Danville, Illinois, for the copyright and publication of their materials. Eight titles in the series have been prepared; the third volume was published in September, 1974.

ERIC DOCUMENTS:
1. Self-Earth Ethic (SEE). A Life-Centered K-12 Curriculum Guide for Environmental Education. Level One. ED 070 602
2. Self-Earth Ethic (SEE). A Life-Centered K-12 Curriculum Guide for Environmental Education. Level Two. ED 086 475

PROGRAM TITLE: PROJECT ECO - AN ENVIRONMENTAL CURRICULUM. OPPORTUNITY

DIRECTOR: Dr. Luther Kiser, Assistant Superintendent for Curriculum and Instruction, Ames Community School District, 120 South Kellogg, Ames, Iowa 50010. (515)232-3400

1973 DIRECTORY REFERENCE: pp. 199-201.

Project ECO, which has received Educational Pacesetter Awards from the PNAC, was validated during the 1972-73 school year through the Identification/Validation/Dissemination process sponsored by the U.S. Office of Education. The Project was adjudged innovative, successful in its mission, cost-effective and appropriate for adoption/adaption in other school districts. This validation, together with the three years' experience on the part of the Project ECO staff in in-service teacher training both with the regular Project program and with a National Science Foundation funded series of environmental education teacher workshops, has led to further Federal funding to serve as a developer-demonstration model.

The specific developer-demonstration Project now in operation has two major levels of activities: (1) training and support activities with two "adopter/adapter" school districts in central Iowa; and (2) activities to bring other school districts in Iowa and the nation to an awareness level which will identify other potential adopter/adapter districts for the school year 1975-76.

Level One activities consist of a series of workshops and inter-district visitations between Project staff and participants which started in August 1974, will continue during the school year 1974-75, and will culminate with a workshop in June 1975. At the conclusion of these activities, an adopter/adapter district will have a written outline of the environmental education curriculum specific for that community, a plan for putting the curriculum into effect, and a trained cadre of six staff members who could direct the in-service development of other teachers in the district and who could provide continued support for program development.

Level Two activities will center on dissemination to both local and national interests in an effort to make others aware of the potential of such teacher in-service training in the area of environmental education.

-L. Kiser

PROGRAM TITLE: CURRICULUM CONCEPTUALIZATION AND DEVELOPMENT OF INTEGRATED PEST MANAGEMENT CONTROL

DIRECTOR: Hal W. Walter, Kirkwood Community College, 6301 Kirkwood Blvd., S.W., Cedar Rapids, Iowa 52406. (319)398-5503

1973 DIRECTORY REFERENCE: p. 204.

ERIC DOCUMENT:
Integrated Pest Management. A Curriculum Report. ED 093 677

PROGRAM TITLE: OSBORNE CONSERVATION EDUCATION CENTER

DIRECTOR: Don R. Menken, Rural Route, Elkader, Iowa 52043.
(319)245-1516

1973 DIRECTORY REFERENCE: PP. 210-11.

Address correction only information received.

PROGRAM TITLE: CONSERVATION EDUCATION CENTER

DIRECTOR: Curtis G. Powell, Box 138C, RR #1, Guthrie Centre,
Iowa 50115. (515)747-8383

1973 DIRECTORY REFERENCE: pp. 212-14.

Address correction only information received.

PROGRAM TITLE: NEW HAVEN POTHOLES OUTDOOR CLASSROOM

DIRECTOR: Roger W. Stevenson, Executive Director, Mitchell County
Conservation Board, Courthouse, Osage, Iowa 50461. (515)732-4849

1973 DIRECTORY REFERENCE: pp. 217-8.

We have continued with our conservation education program at the New Haven Potholes. During the past year we have conducted interpretive tours for classes from four schools. Many of these classes make later trips to the site with their teacher for more specialized studies. We have also provided these conducted tours for clubs and groups as well as public tours on specified days.

We have also made up a slide set of the interpretive tour and have given programs on conservation education with these slides at school classes and civic groups.

-R. Stevenson

PROGRAM TITLE: SHAWNEE MISSION ENVIRONMENTAL SCIENCE LABORATORY

DIRECTOR: Jerry P. Murray and H. Dean Jernigan, 5800 W. 107th,
Shawnee Mission, Kansas 66207. (913)341-4272.

1973 DIRECTORY REFERENCE: pp. 222-4.

The Shawnee Mission Environmental Science Laboratory of Shawnee Mission, Kansas continues to serve the elementary and high school students of the greater Kansas City area. We provide guided educational tours and special activities for approximately 5000 elementary students (K-6) each year. There are research studies continuously being carried out in the lab ranging from prairie management to organic gardening. Approximately 1000 high school students spend from 6 to 12 weeks in intensive field work researching various ecological concepts each year.

-J. P. Murray

PROGRAM TITLE: OUTDOOR EDUCATION

DIRECTOR: Larry Bowser, 1124 West Lyman Street, Topeka, Kansas 66608. (913)233-3045

1973 DIRECTORY REFERENCE: pp. 225-6.

Outdoor education activities are held at school sites as well as district-leased property on a large federal reservoir. This site includes a variety of terrestrial and aquatic habitats with good respresentation of flora and fauna located in northeastern Kansas.

Affective and cognitive learning experiences for children are organized and arranged by building principals and classroom teachers with assistance from the district office. A multitude of activities for enrichment and extension of the classroom are possible for all grade levels.

A major goal for this year is to encourage all elementary teachers to utilize the opportunities available on their school site and the environmental education site. This will be accomplished through greater efforts to make resource persons available.

Summer activities extend the yearly program but more emphasis is upon recreational phases of outdoor education. Students attend voluntarily one day per week for six weeks during June and July. Summer activities are recreational, arts and crafts, and science-related, appropriate for the summer months and the age of students involved.

-L. Bowser

PROGRAM TITLE: ENVIRONMENTAL EDUCATION DEMONSTRATION PROJECT, ESEA, TITLE III, SECTION 306

DIRECTOR: Mr. C. L. "Tuffy" Kellogg, 1601 Van Buren, Topeka, Kansas 66612. (913)357-0351 Ext. 28

1973 DIRECTORY REFERENCE: pp. 227-30.

The federal funding of the Topeka Environmental Education Demonstration Project was terminated July 31, 1974. The major components of the program are being continued through local funding.

The local outdoor education program and the environmental education program have merged, and the programs are now entitled "The Topeka Outdoor Environmental Education Program."

All aspects of the secondary program will be continued with some broadening into other instructional areas. The elementary program will be broadened to include grades four, five, and six and at least one primary grade level.

Adequate curricula has been developed over the past three years; therefore, only a limited amount of curricula will be developed where needed.

Continued evaluation of present curricula and field trip experiences will be conducted.

-C. L. Kellogg

ERIC DOCUMENTS:

1. Balance of Nature. Environmental Education Curriculum. ED 093 593
2. Environmental Fundamentals. Environmental Education Curriculum. ED 093 594
3. Insects and Spiders. Environmental Education Curriculum. ED 093 595
4. Knowing and Using Your Environment. Environmental Education Curriculum. ED 093 596
5. Energy. Environmental Education Curriculum. ED 093 649
6. Animals. Environmental Education Curriculum. ED 097 209
7. Environmental Activities. Environmental Education Curriculum. ED 097 210
8. Enjoying the Environment. Environmental Education Curriculum. ED 097 211
9. Electrical Production and Pollution Control. Environmental Education Curriculum. ED 097 212
10. Tire Production and Pollution Control. Environmental Education Curriculum.
11. Plants. Environmental Education Curriculum. ED 097 213
12. Geology and Environment. Environmental Education Curriculum. ED 097 214
13. Life-Past, Present, and Future. Environmental Education Curriculum. ED 097 215
14. Nutrition and the Growing Population. Environmental Education Curriculum. ED 097 216
15. Water Pollution. Environmental Education Curriculum. ED 097 217

PROGRAM TITLE: ECOLOGY SPEAKERS BUREAU

DIRECTOR: Junior League of Wichita, Inc., Barbara Kratzer,
216 North Battin, Wichita, Kansas 67208. (316)685-2598

1973 DIRECTORY REFERENCE: pp. 231-2.

There are now eighteen people listed as speakers in the Junior League Ecology Speakers Bureau Brochure. Last May, brochures were mailed to approximately 600 local organizations. The Junior League Ecology Committee is now acting as scheduling agent. At the end of this year a determination will be made as to the future of this project. To date, requests for speakers have been few.

Topics and speakers currently listed include: Land Use, Kay Camin; Human Ecology, Earle V. Core, Jr.; Basic Ecology, Mary Honeyman; Youth Involvement in Ecology, Terry Kale; Basic Ecology, Elizabeth King; A Biologist's Bird's Eye View of Ecology, Bob Kruger; Energy Use and Conservation, Will Lake; A Housewife's Guide to Ecology, Pam Lester; Environmental Technology and Legislation, Fred Linde; Environmental Awareness, Glenn Lygrisse; General Ecology, Patty Marlett; Plants, Man and Environment, John C. Pair; Political Environmental Impact, Steve Ramsey; Energy, Nora Steg; Conservation vs. Economics: Conflicts?, Chuck Sturgeon; Auto Emission Controls, Bill Toles; General Ecology, Frances Williamson; General Ecology, Pat Wilson.

-B. Kratzer

PROGRAM TITLE: ENVIRONMENTAL STUDIES

DIRECTOR: Neil Miller, 640 N. Emporia, Wichita, Kansas 67214.
(716)268-7828

1973 DIRECTORY REFERENCE: pp. 235-6.

The Environmental Studies Program, an independent student research program, now exists in all of the public high schools of Wichita, Kansas for a minimum of one-half lab science credit and a maximum of one lab science credit.

-George O. Potts

PROGRAM TITLE: FIELD ECOLOGY

DIRECTOR: Neil Miller, 640 N. Emporia, Wichita, Kansas 67214.
(316)268-7828

1973 DIRECTORY REFERENCE: pp. 237-8.

Field Ecology, a seven week summer program, will be offered for the fifth year in the summer of 1975. Students in grades 9-12 are eligible, with no prerequisites, for the one credit lab science course. Field experiences are emphasized with students being in the field four days out of five and studying ecosystems from the desert in northwestern Oklahoma to the deciduous forests of southeastern Kansas.

-Neil Miller

PROGRAM TITLE: SUMMER ENVIRONMENTAL WORKSHOPS FOR TEACHERS

DIRECTOR: George Potts - Merle Gates, Co-Directors, 1437 Rochester, Wichita, Kansas 67203. (316)264-7351

1973 DIRECTORY REFERENCE: pp. 239-40.

The summer environmental workshops, Man and the Environment for Educators and Environmental Field Studies for Educators, were offered successfully in the summer of 1974 with a total participation of forty two teachers and administrators. These workshops, offered by the Wichita State University School of Education, will be continued for the third year in the summer of 1975.

Feedback of implementation of materials developed in the summer of 1973 has encouraged development of the Wichita Environmental Resource Center, whose major objective is to implement Environmental Education into all courses offered in the K-12 curriculum in Wichita.

-George O. Potts

PROGRAM TITLE: ENVIRONMENTAL EDUCATION FOR MIDDLE SCHOOLS AND ENVIRONMENTAL EDUCATION FOR EDUCABLE STUDENTS

DIRECTOR: Dr. Ernest G. Thro, Hardin County Board of Education, 110 South Main Street, Elizabethtown, Kentucky 42701. (502)765-4186

1973 DIRECTORY REFERENCE: pp. 241-2.

The Hardin County Board of Education is one of twenty school systems in Kentucky that has endeavored to develop environmental education. Since 1971, the Board of Education has invested $10,000 in two pilot programs at the secondary school level (grades 7-12). In addition, two elementary school centers have been part of the state pilot program. In this context, the two elementary schools have received curriculum materials and consultant services from the state project. The information and success of these programs, we believe, dictates the development of an integrated curriculum for environmental education in grades 1 thru 12.

In order to achieve this integrated curriculum, the following long-range plans are being developed:

1. The development of an interdisciplinary approach to the teaching of environmental education to educable mentally handicapped and low normal intelligence range students;
2. The development of a Materials Center of environmental education media within the existing framework of the Hardin County Materials Center;
3. The writing and implementation of a curriculum guide for grades 1 thru 12;
4. The development of three mini environmental education centers;
5. The implementation of an experiential in-service education program for the instructional staff of Hardin County;
6. The beginning of a training program for paraprofessionals for environmental education;
7. The development of work co-op program pertaining to environmental control for vocational education;
8. The cooperative development with Elizabethtown Community College and Union College of Kentucky to two and four year programs for higher education concerning environmental education;
9. The intermeshing of all facets of the community in cooperative projects dedicated to a better environment for the Lincoln Area Development District.
10. The cooperative development with the Elizabethtown Area Vocational School of environmental education programs for adult youth.

-E. G. Thro

PROGRAM TITLE: ENVIRONMENTAL EDUCATION CENTER - LAND BETWEEN THE LAKES

DIRECTOR: John R. Paulk, Operations Office, Golden Pond, Kentucky 42231. (502)924-5602.

1973 DIRECTORY REFERENCE: pp. 243-5.

In addition to the regular operation of the Youth Station, Land Between the Lakes Residential Environmental Education Center, a new facility was opened in Land Between the Lakes for use by educators. Brandon Spring group camp was opened in April, 1974. This facility, located in the Tennessee portion of Land Between the Lakes just north of Dover, Tennessee, has a residential capacity of 128, with plans for expanding accomodations to 256. Early users included youth groups from Kentucky and Tennessee as well as STEP, Students Towards Environmental Participation, sponsored by the National Park Service and UNESCO. The summer months found a varied clientele ranging from church groups to camp organizations using the recreational facilities of Brandon Spring. The flexibility of this facility has promoted use far beyond the typical education or recreation groups, and is currently being programmed for more intensive use by both groups.

The Environmental Education staff was supplemented throughout the '74 year by student interms. These students served a practicum study period with the Land Between the Lakes staff. Times ranged from 8-week programs to 18-week programs. Colleges and universities represented included Antioch College, University of Iowa, The Ohio State University, University of Indiana, and the University of Tennessee. Students, during their stay at Land Between the Lakes, are involved in the total spectrum of environmental education program, including work with formal and informal educational groups, general public, curriculum development and extension work. Consultant services were provided throughout the 7 states of the Tennessee Valley.

Future planning for events and activities expected to occur during the FY 75 include the following:

Environmental Camp: A summer camp designed for students with specific interest in environmental problems, their cause, their implications, and some possible solutions. This program will be conducted in residence at Land Between the Lakes.

Thirties Farm Community: A detailed reconstruction of a typical farm in the 1930's. The purpose of such a reconstruction is to acquaint the general public with the contrasts of farming and lifestyles of only forty years ago.

Careers in the Environment: A series of seminars designed to acquaint high school juniors and seniors with the possibilities of employment and training in environmentally related fields. Each 2-day seminar will be held in residence at Land Between the Lakes.

Continued expansion of summer interpretive program: The development and implementation of a daily series of activities available to the general public during the summer months at the Environmental Education Center in Land Between the Lakes.

Weekend course offerings for college and university credit: A program consisting of workshops in environmental education conducted on weekends. Credit will be given through cooperating colleges and universities. All workshops will be based at Land Between the Lakes Environmental Education Center.

-J. Paulk

ERIC DOCUMENTS:
1. Youth Stations Guidelines for Use. ED 077 694
2. Bear Creek, Alabama - Teachers' Workshop in Environmental Education. (Hodges, Alabama, June 14-18, 1971). ED 077 695
3. Murray State University - Teachers' Workshop in Environmental Education (Youth Station, Land Between the Lakes, August 8-14, 1971). ED 077 696

4. Murray State University - Teachers' Workshop in Environmental Education (Audubon State Park, Henderson, Kentucky, June 19-23, 1972). ED 077 697
5. Murray State University - Teachers' Workshop in Environmental Education (August 7-12, 1972). ED 077 698
6. Use That Campus. ED 081 608
7. A Process Model Showing How a Federal Governmental Agency, Such as the Tennessee Valley Authority, Can Utilize Its Resources to Cooperate With Other Agencies in the Development of Environmental Education Programs for the Tennessee Valley Region. ED 092 354
8. Murray State University - Teachers' Workshop in Environmental Education (Youth Station, Land Between the Lakes, August 5-10, 1973). SE 018 461
9. Environmental Education Study Projects for High School Students. SE 018 495

PROGRAM TITLE: ENVIRONMENTAL INFORMATION DISSEMINATION

DIRECTOR: Dr. Jerry F. Howell, Jr., Director of Environmental Studies, Box 780, Morehead State University, Morehead, Kentucky 40351. (606)783-3328

1973 DIRECTORY REFERENCE: pp. 246-7.

The University created a Center for Environmental Studies in July, 1974. Its purposes are to continue the granting program, serve as a regional clearinghouse for environmental information and to participate in environmental activities state and nationwide. The present granting program consists of disseminating general environmental materials to various school systems, individuals and groups. An eleven program television series titled Environment and Man has just been produced. Although these activities will be continued, a new major program thrust will be in the area of student originated and oriented research.

The students will be drawn from the high school and college ranks. They will be primarily concerned with active ecological research of varying types, all goal-oriented. The research will be performed utilizing the team approach.

The Center for Environmental Studies will continue to take its programs off-campus to area schools and participate in such programs as Students Toward Environmental Participation. It will also take an active part in formulating the Kentucky Master Plan for Environmental Education and conducting teacher workshops. In the future the Center will promote the mutually complementary functions of grant administration and academic programs, while attempting to bridge the gap between environmental information production and absorption.

-J. Howell

PROGRAM TITLE: KING CENTER ENVIRONMENTAL EDUCATION PROGRAM

DIRECTOR: Peggy Hyland, King Education Center, Nazareth, Kentucky 40048. (502)348-9081 Ext. 13

1973 DIRECTORY REFERENCE: pp. 248-9.

The King Center Environmental Education Program is in its second year of operation. Over 2600 students were involved in environmental studies at King Center during the 1973-74 school year in both day-use and resident programs.

Several additions have been made or are anticipated in the physical facilities. Three new hikes have been set up. An historical hike used the buildings, monuments, cemetary, and grounds to trace through 100 plus years of events, lifestyles, and manmade changes. An ecology hike used various miniature ecosystems to demonstrate basic ecological principles and human influence on natural systems. A conservation hike takes groups through the farm area and demonstrates various agricultural practices. An old barn building will be renovated to serve as a farm and dairy display area. New additions have been made to the environmental library from community donations.

In the area of program development, an expansion of the elementary and secondary school program is anticipated. In addition, universities in the area are considering use of King Center facilities for ecological and interdisciplinary course work. Teacher training efforts will be expanded; several workshops are planned for the fall. Negotiations are now underway so that university credit can be earned for work done at King Center. King Center staff will be available to school systems for in-service training. In addition grant opportunities with joint school system, university, and King Center sponsorship are being researched.

The King Center environmental staff is cooperating with various civic organizations to determine a working relationship in the area of adult environmental education. Family week and weekend sessions in environmental awareness are planned for the spring and summer of 1975. An advisory committee composed of school administrators, teachers, and civic leaders has been established to assist in future program development.

-Peggy Hyland

PROGRAM TITLE: PADUCAH PUBLIC SCHOOLS ENVIRONMENTAL EDUCATION PROGRAM

DIRECTOR: James M. Major, 10th and Clark, Paducah, Kentucky 42001. (502)442-6121

1973 DIRECTORY REFERENCE: pp. 250-2.

The Paducah Public Schools Environmental Education Program will continue on the same basis for 1974-75 as it has for the last several years: in-service training for teachers and assistant instructors (high school juniors); all fifth graders having a resident stay in T.V.A.'s Land Between the Lakes; all first grades on one day field trips to T.V.A.'s L.B.L. Model Farm and Educational Museum; all High School Ecology based biology classes have three or more one day field trips to the L.B.L.; all eighth graders having two one day field trips to L.B.L.; other grade levels going on one day field trips to L.B.L. for special demonstrations; all elementary schools continuing their development of on-site environmental education outdoor classrooms. Our curriculum guide is in its 5th edition, 1974. It sells for $7.00 a copy.

Recently, one of our classroom teachers made the following statement: "The Environmental Education Administration and Staff would like to openly challenge any educational program in the Paducah Public School System to show as much positive success as far as relationships among parents, teachers, and students as our present program does. Parents, teachers, students, and the administration support this program more than any other student-teacher related curricular projects."

I believe this statement sums up what our program means to our community.

-James M. Major

PROGRAM TITLE: ESEA, TITLE III, ENVIRONMENTAL EDUCATION

DIRECTOR: Harold Grooms, Coordinator of Environmental Education, Bourbon County Schools, Paris, Kentucky 40361. (606)987-2521

1973 DIRECTORY REFERENCE: pp. 253-5.

Our program is basically the same as in 1973. Teachers make use of materials developed in the project.

-Harold Grooms

ERIC DOCUMENTS:
1. Environmental Education Exercises, Elementary 1-3. ED 081 612

2. Environmental Education Exercises, Elementary 4-6.
ED 081 613
3. Environmental Education Exercises, Junior High 7-8.
ED 081 614
4. Environmental Education Exercises, Senior High 9-12.
ED 081 615

PROGRAM TITLE: ENVIRONMENTAL AWARENESS THROUGH THE ARTS

DIRECTOR: Mrs. Myrtle Kerr, Supervisor of Art, State Department of Education, P.O. Box 44064, Baton Rouge, Louisiana 70804.
(504)389-5265

1973 DIRECTORY REFERENCE: pp. 261 -2.

The Louisiana Arts Traveler is a mobile unit designed for arts educational purposes. Piloted with the state universities, it will bring a coordinated arts program into the school room utilizing student teachers, supervising staff (both parish and university) and two professional consultants (art and music) assigned to the traveler.

The program, "The Great River and Its Legacy," will open whole new vistas. Assembled by the Louisiana State Museum, The Traveler traces culture developed along the Mississippi River and environmental effects upon the inhabitants.

A suggested teacher's guide accompanies The Traveler. As part of the expansion program, each locality visited by The Traveler, such as the Hungarian community, migrant communities, rural and urban communities, etc., will develop their own resource guide in cultural development and environmental awareness, as part of the universities' programs.

A composite of the individual resource guides will be compiled by the State Department of Education yearly according to the exhibition changes. The Arts Traveler, equipped with extensive audio/visual equipment, will travel statewide for mini-workshops, retraining and reinforcing learning in environmental awareness using the arts.

-Myrtle Kerr

ERIC DOCUMENT:
Environmental Awareness Through the Arts (Curriculum Activities Guide, Monograph, and Slide-Tape Set). ED 094 981

PROGRAM TITLE: ENVIRONMENTAL EDUCATION CURRICULUM DEVELOPMENT PROGRAM

DIRECTOR: Mr. Isadore Inman, Jr., St. Martin Parish School Board, 305 Washington Street, St. Martinville, Louisiana 70582. (318)394-6967

1973 DIRECTORY REFERENCE: pp. 265-6.

The overall purpose of this project is to develop a parishwide meaningful environmental education curriculum which will be geared to the specific needs and interests of elementary and secondary students. The curriculum developed encompasses all grade levels (K-12). In the first year of the program, curriculum guides were written for grades 5, 6, 7, and 8. In the second year 1973-74, curriculum guides were written for grades K-4 and 9-12. The final year of the environmental program (1974-75) emphasis is placed on final revision of all curriculum guides, grades K-12, and implementation of environmental materials into the existing curricula in all St. Martin Parish schools.

The implementation process was initiated during the summer month of July 1974, by conducting a three-week environmental workshop for teachers of grades K-12. The main purpose of the workshop was to give teachers an opportunity to be introduced and oriented to the St. Martin Parish Environmental Education Program.

There are two staff teachers working full-time with the environmental program. These teachers are administering pretest to students who will be exposed to the environmental materials. The staff teachers also teach environmental classes and assist teachers in the various schools using the environmental materials. The revision and correction of environmental material written is another duty of the staff teachers. At the Nature Trail environmental classes are taught in the laboratory and outdoor activities are conducted on the trail.

At the present, curriculum guides have been developed and printed for grades K-12. Included in the guides are encounters which will fit into existing courses without restructuring the curriculum. The curriculum format consists of behavioral objectives and activities which are student oriented. The units written are not sequential, and will cover most facets in environmental education.

Plans have not been finalized for the dissemination process of the curriculum guides that are printed. At the present time we have a limited number of curriculum guides for free.

-Isadore Inman, Jr.

ERIC DOCUMENTS:

1. Environmental Education Curriculum Development, Grades K-1, For St. Martin Parish. SE 018 446
2. Environmental Education Curriculum Development, Grade 6, For St. Martin Parish. SE 018 657

PROGRAM TITLE: VIEWER-ACTIVE TELEVISION PROJECT

DIRECTOR: Erik VandeBogart, Executive Director, Maine Public Broadcasting Network, Alumni Hall, University of Maine, Orono, Maine 04473. (207)866-4493 Ext. 20

1973 DIRECTORY REFERENCE: pp. 267-8.

Project purpose: To develop a national model for an environmental education topic, using a multi-media approach featuring "viewer-active" television.

Objectives: To increase public awareness of the most critical environmental issue in the State. To provide a blueprint and model for replication of "viewer-active" television process.

Materials:
1. Materials Produced:
    a. K-6: minor use of program
    b. 7-12: teacher's guide (to project use), Viewer Guide (school viewers use), Eco-Acrds board game, Videotape Programs (telecast statewide in daytime)
    c. Others: Viewer's Guide (home viewers), Eco-Acres board game, Videotape Programs (telecast statewide in evening)
2. Free materials available: all available free within the state. Includes all project materials.
3. Materials produced that can be purchased: prices on materials $2.00 to cover partial cost of handling, postage, printing. Includes Blueprint, Game, Guides, etc.
4. New instructional materials being developed: secondary school level and adult.
5. Additional materials being developed: Teacher's Guide, Viewer's Guide, Eco-Acres Board Game, Videotaped Programs (5).

Consultative service and in-service education are available for teachers using the materials as are the Teacher's Conference Workshop, Statewide Broadcast on TV, Videotape Sampler.

Materials evaluation is included in Blueprint booklet.

Project summary:
1. Statewide survey for topic selection.
2. Research into prime topics and topic selection.
3. Research and topic development.
4. Writing scripts, television productions.
5. Development of Multi-Media approach.
6. Promotion, broadcast, evaluation.
7. Final report and dissemination.

Plans for the Future:
1. Production of television programs for re-use, editing, etc.
2. Reprint of auxiliary materials.
3. Continued dissemination of project information.

4. Rebroadcast of programs.
5. Accumulation of information regarding spin-off projects and replication.

-E. VandeBogart

ERIC DOCUMENT:
A Blueprint For a Television Environmental Simulation Project: "The Land and Me." ED 088 494

PROGRAM TITLE: MAINE ENVIRONMENTAL EDUCATION PROJECT'S NATIONAL DEVELOPED-DEMONSTRATION PROGRAM, TITLE III, 306 ESEA

Director: Dr. Dean B. Bennett and Mr. Wesley H. Willink, Intermediate School, Yarmouth, Maine 04096. (207)846-3392

1973 DIRECTORY REFERENCE: pp. 269-70.

The Maine Environmental Education Project's National Develop-Demonstration Program will emphasize the following activities:

1. The redevelopment and design of project approaches, processes, and materials.
2. The evaluation of project products and processes at three levels of implementation - the K-12 student level, the teacher level, and the program implementation level.

The Regional Environmental Education Program will serve as the setting for evaluating K-12 student and teacher approaches and outcomes. The Statewide efforts will serve to evaluate in-service teachers and program implementation approaches and outcomes. The jointly sponsored training workshops with ERIC will serve to also evaluate program implementation approaches and outcomes.

-Bennett, Willink

ERIC DOCUMENTS:
1. The School Site in Environmental Education. ED 066 308
2. Guidlines for Planning and Implementing a Comprehensive Community Environmental Inventory. ED 067 233
3. Comprehensive Community Environmental Inventory, Yarmouth, Maine. ED 067 235
4. A Report on Research and Development in Environmental Education. ED 091 218

PROGRAM TITLE: REGIONAL ENVIRONMENTAL EDUCATION PROGRAM

PROGRAM CO-ORDINATOR: Mary Graham, Intermediate School, McCartney Street, Yarmouth, Maine 04096. (207)846-3392

1973 DIRECTORY REFERENCE: pp. 273-5.

This begins the sixth year of the Regional Environmental Education Program. This program services K-12 grades in the Yarmouth, North Yarmouth, Cumberland, Freeport and South Freeport school systems. Dr. Dean Bennett and Wesley Willink, previous directors of the program, and myself, the current director, feel it is time to change the program format.

In the past, due to logistics of transportation and scheduling, weather, and number of K-6 students, the Fall program has emphasized a presentation and field trip for each K-6 class. Follow-up activities have been left primarily up to the teacher. This year we are trying something different in order to give each class a more thorough program. Each classroom will be given one hour a day for four consecutive days, Monday through Thursday. Included in this four day package will be an orientation presentation, field trip, and follow-up activities. K-1 will focus on the school; 2-3 neighborhood; 4-5 community; and 6 the region. The grade level package will help develop concepts concerning the natural and human ecosystem, skills in discovery, inquiry, evaluation, problem identification and problem solving. This package approach will allow the environmental education staff a more comprehensive program enabling us to get more familiar with the students and work directly with the teacher. Fridays are specifically reserved to arrange meetings with the teachers that we will work with the following week.

Following this plan, we will cover K-3 grades with our four day package by Christmas. After the holiday season, we will pick up grades 8-12 and grades 4-7 in the Spring. While these core activities are going on, we will also be offering special enrichment activities for all grade levels throughout the year. Enrichment activities might include field trips to natural or man-made areas, movies, slide show, displays, demonstrations, speakers and responding to special requests.

-M. Graham

PROGRAM TITLE: OUTDOOR SCHOOL

DIRECTOR: Kendrick Y. Hodgdon, Supervisor of High Schools, Board of Education, Allegany County, Box 688, Cumberland, Maryland 21502. (301)722-6695 Ext. 50

1973 DIRECTORY REFERENCE: pp. 276-7.

During the last season we ran an Outdoor School for trainable children that was very successful and plan to continue working with the special education and trainable students. We are also going to make contact with the parochial schools to see if it would be possible to work out a program for them.

Future workshops are planned to update material and to work out new trails and classes.

-K. Y. Hodgdon

PROGRAM TITLE: ENVIRONMENTAL EDUCATION MATERIALS, MONTGOMERY COUNTY SCHOOLS

DIRECTOR: Division of Environmental Education, Montgomery County Public Schools, 850 Hungerford Drive, Rockville, Maryland 20850. (301)279-3500

1973 DIRECTORY REFERENCE: pp. 281-2.

No update report received.

ERIC DOCUMENTS:
1. Activities for Studying Streams, Grade Level 5-6. Environmental Education Series, Bulletin No. 247-A. ED 075 217
2. Activities for Studying Wildlife, Grade Level 4-6. Environmental Education Series, Bulletin No. 247-B. ED 075 218
3. Activities for Studying Weather, Grade Level 4-6. Environmental Education Series, Bulletin No. 247-C. ED 075 219
4. Activities for Studying Ponds (Limnology), Grade Level 5-6. Environmental Education Series, Bulletin No. 247-D. ED 075 220
5. Activities for Studying Rocks and Soil, Grade Level 4-6. Environmental Education Series, Bulletin No. 247-E. ED 075 221
6. Activities for Studying Seasonal Change, Grade Level K-1. Environmental Education Series, Bulletin No. 247-F. ED 075 222
7. Activities for Studying Megalopolis, Grade Level 4-8. Environmental Education Series, Bulletin No. 247-H. ED 075 223
8. Activities for Studying Maps and Compass Study, Grade Level 4-6. Environmental Education Series, Bulletin No. 247-I. ED 075 224
9. Outdoor Art Activities, Grade Level K-12. Bulletin No. 247-K. ED 075 225

PROGRAM TITLE: HABITAT INC. - SCHOOL OF ENVIRONMENT

DIRECTOR: William Phillips, 10 Juniper Road, Belmont, Massachusetts 02178. (617)489-3850

1973 DIRECTORY REFERENCE: pp. 283-4.

During the past year Habitat worked on over a dozen environmental projects for cities and towns in Eastern Massachusetts. Twenty-four student interns ranging in age from 17 to 63 worked on these.

The bulk of our work continues to be in environmental education, water quality and land use. We continue to solicit student interns who wish to spend a year learning how to solve environmental problems.

-W. Phillips

PROGRAM TITLE: FISKE HILL ENVIRONMENTAL STUDY AREA

DIRECTOR: Minuteman National Historical Park, P.O. Box 160,
Concord, Massachusetts 01742. (617)369-5944

1973 DIRECTORY REFERENCE: p. 293.

Address correction received.

PROGRAM TITLE: PROJECT PART-TIME (PUPILS AS RESPONSIBLE TEACHERS TO INCREASE MUTUAL ESTEEM)

DIRECTOR: Mary F. Toomey, 1615 Commercial Street, E. Weymouth,
Massachusetts 02189. (617)335-6331

1973 DIRECTORY REFERENCE: pp. 304-5.

Through the efforts of Project PART-TIME, the town of Weymouth now has an excellent year-round environmental program.

Two full-time ecology teachers are employed to supervise and teach classes in grades K-12. These specialists utilize town conservation areas as well os other natural assets unique to Weymouth. Also open areas adjacent to schools are utilized as outdoor laboratories. In addition to providing in-service courses for teachers, they are developing comprehensive teaching units for all grade levels. The specialists are available to town departments which request their services.

In the spring of 1975 the ecologists plan to conduct an Ecology Weekend in Weymouth. During this period there will be seminars, movies, speakers and exhibits in an attempt to educate Weymouth adults in environmental problems.

During the summer months the environmental education program continues from two headquarters. At Great Esker Park, a 237-acre conservation area, eight college students majoring in different areas of the natural sciences, are supervised by an ecology specialist as they teach classes formed from a total enrollment of approximately 500 children. Introductory and advanced classes are offered in Marine Biology, Geology, Archeology, Marsh Life, Nature Study, Botany, Nature Photography, and Art in Nature. At the newly-established Bradford Torrey Nature Center, two college students present courses in Pond Life, Geology, Nature Study, and Botany to an enrollment of approximately 200 children.

Future plans call for the building of expanded facilities at Great Esker Park and additional field work by high school ecology students in projects to benefit the town. For example, ecology students will measure currents and pollution at Weymouth's Back River and study its food-producing possibilities. They will conduct soil erosion tests and work with soil conservation experts and the town Department of Public Works selecting proper plants for a large gravel banking near one of Weymouth's new elementary schools. Other studies will be made in conjunction with preserving Weymouth's water supply.

Weymouth's environmental education program is expanding and on-going.

-M. Toomey

PROGRAM TITLE: P.T.A.'S NATURE TRAILS

DIRECTOR: Mrs. Joannah Brunelli, P.T.A. Coordinator, 71 Brook Street, Franklin, Massachusetts 02038. (617)528-5229

1973 DIRECTORY REFERENCE: pp. 296-7.

As of last report, two new trails have been developed. The Milliken Avenue Trail serves a four-class school in its vicinity. The Fisher Street Trail is at the town's "water works" and serves three schools. It is the longest trail to date and holds a good many possibilities concerning water study.

The spring of '75 will see a new trail and will be the final step in providing nature trails for the elementary school population. This will make a total of seven trails.

Once the physical trails have been developed, we hope to develop an on-going program with the teachers utilizing the trails. To date, volunteers are the only users, but the turn-over factor does not lend to a continued development of trail material. Each season we see new faces and must start over again with old material to familiarize the new guides with the trail and with elementary information.

It is at a point where the school children are more informed than the guides since they have been exposed to the trails for four years.

-J. Brunelli

PROGRAM TITLE: FOX RUN - NATURAL SCIENCE AREA

DIRECTOR: Thomas J. MacDonald, Science Coordinator, Esten School, 733 Summer Street, Rockland, Massachusetts 02370. (617)878-8336

1973 DIRECTORY REFERENCE: pp. 302-3.

No new information submitted.

PROGRAM TITLE: WALTHAM SUMMER ENVIRONMENTAL SCIENCE PROGRAM

DIRECTOR: Dr. Alan Aymes, Science Director, Waltham High School, 617 Lexington Street, Waltham, Massachusetts 02154. (617)893-8050

1973 DIRECTORY REFERENCE: pp. 309-10.

Our program remains essentially unchanged, except that we have added to the staff two paid Student Aids (high school students) and a few unpaid helpers (junior high students).

-A. Aymes

PROGRAM TITLE: TRAINING INDUSTRIAL WORKERS AND THEIR FAMILIES TO BE EFFECTIVE ENVIRONMENTAL LEADERS

DIRECTOR: Margaret Allen, Environmental Education Conservation Department, UAW, Solidarity House, 8000 East Jefferson Avenue, Detroit, Michigan 48214. (313)926-5000

1973 DIRECTORY REFERENCE: p. 313.

The thrust of our P.L. 91-516 grant was in February 1974 to develop and carry out programs on critical environmental issues for industrial workers, specifically members of the UAW. The issues selected for development were land use, water quality, energy, transportation, solid waste, and the impact of technology on the environment. New written and audio-visual materials suitable for adults were developed. In addition, structured group discussions were evolved for each topic. The materials and participation exercises were combined into special 2½-hour workshops. The programs were continually tested and evaluated by staff and participants over the year. The workshops were run by UAW Conservation Department staff members during educational programs at the Walter and May Reuther UAW Family Education Center in northern Michigan and during various Regional programs throughout the country.

-Margaret Allen

PROGRAM TITLE: EDUCATION AND TRAINING SECTION, INFORMATION AND EDUCATION DIVISION, MICHIGAN DEPARTMENT OF NATURAL RESOURCES

DIRECTOR: Rod Smith, Supervisor - Education and Training, Department of Natural Resources, Mason Building, Lansing, Michigan 48926. (517)373-1214

1973 DIRECTORY REFERENCE: pp. 314-6.

The Ralph A. MacMullan Conservation School at Higgins Lake is operated year-round as a training and conference center for the Department of Natural Resources. The School also hosts other groups including federal and state agencies, educators from Michigan colleges and universities, school teachers, administrators, garden clubs, and environmental organizations having an active interest in natural resource management.

Summer programs at the School include ten week-long teacher environmental education credit courses, involving some 500 students. Course content includes lectures, guided field trips, field investigations and group discussion. These courses are conducted by university staff and resource personnel from industry and the Department of Natural Resources.

The Department works closely with colleges and universitites in planning curricula in environmental affairs and with the State Department of Fducation in cooperative programs.

Service to individual teachers is provided through materials, consultation, film loan program, and conferences and workshops.

"Environmental Education News", a four-page monthly publication, is sent to all school libraries and a number of agencies, universities, and organizations. The "E. E. News" is designed to keep the readers informed of environmental education conferences, workshops, publications, materials and activities in Michigan.

The unit also provides workshops and seminars for the Department's inservice training program. Assistance with program planning, audio-visual materials and development of publications is also available to all other divisions of the DNR.

Responsibility for planning and coordinating the Youth Conservation Corps program lies within the Education and Training Unit, as well as the Conservation Education Reserve program.

-Rod Smith

PROGRAM TITLE: COMMUNITY SERVICES, ENVIRONMENTAL EDUCATION
E.S.E.A. TITLE I

DIRECTOR: Mr. Michael H. Mansour, Office of Community Action Programs, 350 Wide Track Drive East, Pontiac, Michigan 48058. (313)338-9151

1973 DIRECTORY REFERENCE: pp. 317-18.

Pontiac's Environmental Education Program is a component of the E.S.E.A. Title I Program. As such it supports all identified Title I schools in our district with interdisciplinary curriculum materials. Recognizing student's high regard for ecology we attempt to not only environmentalize Pontiac students but to use this interest in ecology for reading and math developments.

Specific district wide teaching units are developed and sent out to identified teachers who will agree to include environmental issues in their curriculum. This year's units will include: energy, solid waste, camping, telephone book recycling, junk care, stray dogs, littered tires, trees, and population.

Another basic effort this year will be to adopt environmental education guidelines and minimum performance objectives developed by the Michigan Department of Education.

-M. H. Mansour

PROGRAM TITLE: INTERN PROGRAM

DIRECTOR: Dr. John Y. Jackson, Intern Coordinator, Northeastern Minnesota Environmental Learning Center, Box 191A, Isabella, Minnesota 55607. (218)292-4345

1973 DIRECTORY REFERENCE: pp. 324-5.

The Environmental Learning Center is a live-in facility located in the heart of the Superior National Forest. Each year thousands of Minnesota children and adults conduct, and participate in environmental programs at the Center. While the majority of the participant schedule is selected and conducted by the visitors, the Center also offers a selection of instructed activities each afternoon and evening. The Center staff, assisted by a number of undergraduate and graduate students, is responsible for these sessions.

The main objective of the Center is to provide opportunities for meaningful environmental education. School groups that use the Center are required to design and conduct their own programs.

The Center will provide a complete educational facility, as well as most of the equipment necessary for seasonal outdoor programs and assistance in developing a total program. The majority of the pre-session preparation, as well as the actual instruction, is in most cases, the responsibility of the visitor.

Programs conducted by Center staff and interns will be limited to no more than twenty participants. Special efforts will be made to insure that the visiting teachers participate along with their students so that they may acquire skills which can be applied while visiting the Center.

In addition to assisting with the school programs, interns will also have the opportunity to assist with many special interest programs offered throughout the year. The NORTHWOODS SERIES will find eighteen different three-day seminars dealing with topics ranging from poetry and painting to wild edible foods. Each intern will have the opportunity to work with at least one SERIES consultant each quarter. Other credited courses offered for educators will be conducted two or three times each quarter and interns may assist with the development and direction of these programs.

The Intern Program is open to graduate and undergraduate students. Each intern will be responsible for designing their own independent study efforts as well as making arrangements with their college. A total of eight interns will be placed each quarter. A course of study approved by a college advisor is required.

Each student will be paid $150 per quarter. Maximum length of stay will be three quarters or one school year. Room and board will be provided, with all meals served in the Center dining hall. A meal allotment of 75¢ per meal will be provided for those times when the Center is not serving meals.

Each intern will be expected to participate in, and assist with, Center related activities for a total of not more than thirty hours each week as well as their approved independent study projects. The thirty hours will be determined by the intern coordinator and will include a maximum of two evenings each week and no weekends.

Responsibilities will include working as a Center Aide, assisting the Center Naturalist and Intern Coordinator, as well as assisting, observing and instructing a variety of classes conducted each afternoon and evening Monday thru Friday of each week.

The Center hopes to develop curriculum packages dealing with all phases of education. Programs designed specifically for younsters as well as programs for adults will be developed and provided. The Center has and will continue to encourage use by handicapped children and adults, low income persons, elementary and secondary school groups as well as special credited seminars and programs.

The Independent Study potential is limited only by the imagination and creativity of the student. A better understanding of man's relationship to his natural environment will happen only when people constantly consider the impact of their daily decisions upon the earth. No area of concern can be left out. This is the scope of environmental education.

The Center's permanent staff consists of the Director, Intern Coordinator, and a Naturalist with extensive outdoor recreation skills These persons will provide any and all assistance possible.

The Center, initiated with Title III funding, is self sufficient; and, during the past three years has been used by over thirty thousand persons for a total of over ninety thousand user-days.

-J. Jackson

PROGRAM TITLE: DEPARTMENT OF INTERPRETIVE SERVICES, HENNEPIN COUNTY PARK RESERVE DISTRICT

DIRECTOR: Jack Mauritz, Route 1, Box 32, Maple Plain, Minnesota 55359. (612)473-4693

1973 DIRECTORY REFERENCE: pp. 328-9.

Current activities involve operation of three nature center facilities:

Lowry Nature Center, Carver Park Reserve, Route 1, Box 690,
Excelsior, Minnesota 55331. (612)472-4911

Nature Center, Hyland Lake Park Reserve, 8737 E. Bush Lake
Road, Bloomington, Minnesota 55431. (612)941-7993

Whitney Eastman Nature Center, Elm Creek Park Reserve, Route 3,
Ossco, Minnesota 55369. (612)425-2324

Major activities remain as support programs for classroom groups in a wide range of outdoor-related environmental education areas. Materials are generated incidental to this activity rather than as an end in themselves. Our materials list remains essentially as listed previously - some revision has taken place since first listing with ERIC.

-J. Mauritz

PROGRAM TITLE: INDUSTRY-EDUCATION CONFERENCE ON ENVIRONMENTAL IMPACT IN MINNESOTA

DIRECTOR: Edmund C. Bray, Executive Vice Chairman, Conference Committee, 3100 38th Avenue S., Minneapolis, Minnesota 55406. (612)721-3391

1973 DIRECTORY REFERENCE: pp. 330-1.

On May 12-14, 1974, 113 participants representing citizens groups, education, government, industry, and labor gathered at Onamia, Minnesota to discuss "The Future Environment of Minnesota: The Educational Task." Prior to the conference, the participants had received copies of six scenarios by experts dealing with:

The Education Communication System
The Energy System
The Government System
The Industrial System
The Natural Resources System
The Transportation System

The "ticket" for registration at the conferences was a tear-sheet on which the participants reacted to each of the scenarios. During the three days, small-group discussions reviewed the scenarios and made alterations and suggestions as to steps which should be taken to provide a better environment for Minnesota in 1985. These discussions were supplemented by speeches on "The Future Environment of Minnesota" by a former Governor, "The Challenge for 1985" by the Director of State Planning, and "The Educational Challenge" by the headmaster of a private school system.

The results of the conference, including the scenarios and addresses, the reports of the groups leaders, and an educational scenario developed during the conference, are to be published as an issue of The Journal of the Minnesota Academy of Science.

It is hoped that participants at the conference will arrange similar gatherings on a regional basis.

-Edmund C. Bray

ERIC DOCUMENT:
Future Environment of Minnesota: The Educational Task. SE 018 505

PROGRAM TITLE: COMMUNITY ENVIRONMENTAL STUDY PROGRAM

DIRECTOR: Edward Hessler, 5400 Glenwood Avenue, Minneapolis, Minnesota 55422. (612)544-8971

1973 DIRECTORY REFERENCE: pp. 334-6.

The Community Environmental Study Program completed its final project year June 30, 1974. Project-produced materials include Breaking Into Your Community, a series of ten activities which consist of five processes for using community products, organizations, places and people and five activities concerned with land use planning, energy, zoning, transportation, changing lifestyles and action. Helping Teachers to Find and Use Communities for Learning describes workshop processes used to help teachers develop environmental education programs and to write educational materials. This series describes project events and places. Community Environmental Study Materials for Special Education consists of ten activities and a teacher in-service guide developed and used by Special Education teachers participating in the Community Environmental Study Program.

-Edward Hessler

ERIC DOCUMENT
Community Environmental Study Program. Final Report. SE 018 145

PROGRAM TITLE: MINNESOTA ENVIRONMENTAL SCIENCES FOUNDATION, INC.

DIRECTOR: Richard J. Myshak, Executive Director, 5400 Glenwood Avenue, Minneapolis, Minnesota 55422. (612)544-8971

1973 DIRECTORY REFERENCE: pp. 337-9.

The Minnesota Environmental Sciences Foundation, Inc. (MESFI) is currently operating in three major areas of environmental education. They are:

1. Developing and evaluating model problem solving processes for citizen decision makers. Elements of the model are:
    a. values clarification
    b. communication
    c. decision making
    d. prioritizing action alternatives

Various combinations of these elements are being tested and evaluated in conjunction with the State's Regional Environmental Education Councils (REECS).

2. Curriculum development for secondary schools in Minnesota. Materials will be evaluated during February '75 by the Minnesota State Department of Education.

3. Educational land use planning. This involves assisting managers of public lands (county commissioners, boards of education, city councils, etc.) develop land for educational and recreational purposes. One major project revolves around a 6,000 acre tract in northern Minnesota. Here the MESFI is gathering and analyzing data which will be used to help the county plan multiple compatible uses of the property.

-R. J. Myshak

ERIC DOCUMENTS:

1. Brine Shrimp and Their Habitat. SE 018 514
2. Change in a Small Ecosystem. SE 018 515
3. Color and Change. SE 018 516
4. Contour Mapping. SE 018 517
5. Differences in Living Things. SE 018 518
6. Fish and Water Temperature. SE 018 519
7. Genetic Variation. SE 018 520
8. Man's Habitat-The City. SE 018 521
9. Nature Hunt. SE 018 522
10. Nature's Part in Art. SE 018 523
11. Oaks, Acorns, Climate, and Squirrels. SE 018 524
12. Outdoor Fun for Students. SE 018 525
13. Plant Puzzles. SE 018 526
14. Plants in the Classroom. SE 018 527
15. Sampling Button Population. SE 018 528
16. Shadows. SE 018 529
17. Snow and Ice. SE 018 530
18. Soil. SE 018 531
19. Stream Profiles. SE 018 532
20. Tile Patterns and Graphs. SE 018 533
21. Transect Studies. SE 018 534

PROGRAM TITLE: NATURAL RESOURCE EDUCATION

DIRECTOR: Bernard A. Fashingbauer, Science Museum of Minnesota, 30 E. Tenth Street, St. Paul, Minnesota 55101. (612)222-6303

1973 DIRECTORY REFERENCE: pp. 350-1.

The 1974 program at the Lee and Rose Warner Nature Center is essentially the same as in past years. During the spring and fall, however, we have added to our half-day schedule eight or nine all-day programs each season. These include canoeing, hiking, aquatic life studies, bird-banding, etc., and are limited to thirty children each so that a quality experience is possible wherein each child can participate in every activity.

The Nature Center staff has been increased by the addition of a full-time artist/naturalist. This will enable us to make more use of our indoor display space.

Our future goals remain the same.

-B. Fashingbauer

PROGRAM TITLE: MINNESOTA ENVIRONMENTAL EDUCATION PROGRAM

DIRECTOR: John C. Miller, 644 Capitol Square Building, St. Paul, Minnesota 55101. (612)296-4069

1973 DIRECTORY REFERENCE: pp. 354-6.

Ten new mini-units available Fall, '74. (Total of 40)
Secondary (7-12) materials trial testing Fall, '74. (27 units)
Revision and reprinting of Environmental Values Action Cards (50) 1975.
Field testing of "Curriculum Planning Guide for Environmental Education" 1974-75.
Publication of Environmental Education Resource Manual for Educators-1975. (Note: '75 edition will contain only K-6).
All materials available to educators in Minnesota free, others can write for further information and charges.

-J. C. Miller

ERIC DOCUMENTS:
1. Environmental Education (30 Instructional Mini-units for K-6. ED 066 325
2. Audiovisual Materials for Environmental Education. ED 066 327
3. Environmental Education Curriculum Materials. ED 066 336
4. Selected Resources for Environmental Education 1969-1971. ED 066 337

PROGRAM TITLE: SUMMER INSTITUTE ON BIOLOGICAL CONTROL OF PLANT INSECTS AND DISEASES

DIRECTOR: Dr. F. G. Maxwell, P.O. Drawer EM, Mississippi State, Mississippi 39762. (601)325-4541

1973 DIRECTORY REFERENCE: p. 361.

The grant from HEW has expired. It funded partially a Summer Institute. The Proceedings have just come off the press in handbook and paper back versions and are available through University Press at Jackson at $12.50 per copy.

The publication provides the first comprehensive treatment of the area of biological control and pest management concepts. It will be a valuable compilation of current information in this field for teachers and researchers alike.

-F. G. Maxwell

ERIC DOCUMENT:
Proceedings of the Summer Institute on Biological Control of Plant Insects and Diseases. ED 097 207

PROGRAM TITLE: ROCKWOODS RESERVATION

DIRECTOR: Randall O. Herberg, Area Manager, Route 1, Box 1599, Glencoe, Missouri 63038. (314)272-5436

1973 DIRECTORY REFERENCE: pp. 364-5.

No significant changes at present.

-R. O. Herberg

PROGRAM TITLE: MISSOURI ENVIRONMENTAL STUDIES APPROACH (MESA)

DIRECTOR: Dr. Dean A. Rosebery, Science Division, Northeast Missouri State University, Kirksville, Missouri 63501. (816)665-5121 Ext. 7204

1973 DIRECTORY REFERENCE: pp. 366-7.

This project resulted from another project under the Environmental Education Act No. 91-516 in which 50 administrators were invited to the campus of Northeast Missouri State University for the purpose of arriving at a decision as to their method of incorporating Environmental Education into their curriculum. The administrators of 21 schools planned to participate in the further extension of the Environmental Education Project by being a part of this project.

The MESA Project used the materials of the Environmental Studies Project of the American Geological Institute of Boulder, Colorado. The Environmental Studies (E.S.) resulted from an effort to develop materials for teachers that allowed the student to express himself regarding the immediate environment in which he lives. It operated on two premises: (1) every student is in an environment and (2) the student can learn from this environment. A major distinction of the program is that three environments were considered -- the inner environment of the child, the immediate environment in which he finds himself, and the global environment.

As stated in the AAAS Science for Society Education Review, Volume 1, No. 3, p. 3, "...Thus rather than being merely an attempt to hop on the bandwagon of environmental concern, the Environmental Studies Program represents a major change in educational philosophy approaching learning from the standpoint of the learner himself in his own environment..."

Three intensive training sessions were conducted for four weeks each during the past three summers. Each session had approximately 30 teachers. The in-service phase was a followup with instructional staff members assisting the classroom teachers during the year. By the end of three years, there should be enough of a nucleus of people trained in the philosophy of environmental studies that the teachers would support and reinforce each other with the result that environmental education be an integral part of the entire curriculum of the participating schools.

The personal testimony from teachers and their administrators indicate a much changed attitude in terms of personalization and increased openness of classroom procedures. Changes in teacher attitude are frequently reported as the most significant outcome of the Project.

-D. Rosebery

ERIC DOCUMENT:
Missouri Environmental Studies Approach (MESA) Interim Evaulation Report. July 1, 1972-June 30, 1973. ED 093 895

PROGRAM TITLE: ENVIRONMENTAL EDUCATION IN THE BILLINGS PUBLIC SCHOOLS

DIRECTOR: Edward Heiser, Coordinator, Environmental Education Activities, Billings School District, 101-10th Street West, Billings, Montana 59102. (406)248-7421

1973 DIRECTORY REFERENCE: pp. 371-3.

Environmental education in its earlier form of conservation education has been available in Billings at Eastern Montana College ever since 1948, with a course offered every quarter and a number of teachers' workshops offered over the years since Dr. Wilson F. Clark joined Eastern in 1954. But the concept never jelled until the upsurge of public concern of environmental matters in the late 60's. Then in the winter of 1967, with Dr. Clark heading an EMC faculty team of Dr. Helen Grilley, Professor Erick Erickson, Dr. Norm Schoenthal, and Professor Elmer Andersen, a modest pilot program was launched with one sixth-grade class of thirty children in one school. Now, eight years later, the program included twenty-nine elementary schools in the Billings area, about eighty-three sixth-grade teachers, and some 1,650 sixth-grade children. The program is entirely self-supporting, and has been throughout its entire existence. This has come about as a result of the close working relationships which were built with the principals, administrators, and School Board members of School District 2, and with the development of a foundation of parental and community support. It has never had any Federal funds or State funds, but has been financed largely through the support of the Parent-Teacher Associations and organizations, with some help from local, professional, and service groups. The whole philosophy of the program is one of outdoor investigations, experiments, measurements, activities, and observations, not only in science areas but also in art, mathematics, geography, and the social sciences. The College and the Billings School District jointly published a manual, Exploring the World: An Environmental Education Handbook for Students and Teachers, containing some eighty-five short units on many grade levels but with mojor emphasis on the upper elementary grades.

Concurrently, the USDA Forest Service had initiated an environmental education endeavor of its own, begun in 1968 by Ernie McDonald of the Pacific Northwest Region in Portland. Then over the next few years, some other Federal agencies launched environmental education programs, notable the National Park Service, and more recently the Fish and Wildlife Service, with the Bureau of Land Management getting into the act in the last year or two. Other Federal and State agencies were also working in one or another aspect of environmental education--and each agency was competing and clamoring for attention of teachers and children, and pounding on the schoolhouse doors.

As Tom Ellis put it, "We saw that all of these programs--federal, state, and municipal--were all going their own way, often duplicating each others' services and, in the process, often being a source of some confusion to the public. We decided that both the public and the environmental education efforts would benefit if we all coordinated our efforts into one strong program. And that was a wise decision. The Billings area and the entire Custer National Forest are now blessed with a tried and proven environmental education program with traditions already eight years old."

One of the important things about the USFS teacher workshop program is that it now has six cooperators - the Forest Service, the Bureau of Land Management, the Fish and Wildlife Service, the National Park Service, the Billings School District, and Eastern Montana College. Steps are being taken to involve the Soil Conservation Service, the Extension Service, and the Montana Fish and Game Department - each of which now makes significant individual contributions to environmental education in various ways. Eastern Montana College has offered nine teacher workshops since 1967, yet when approached about a cooperative endeavor in the fall of 1973, enthusiastically substituted the cooperative workshops for its own workshops, on a college credit basis.

-E. Heiser

PROGRAM TITLE: ENVIRONMENTAL AWARENESS

DIRECTOR: Robert Bucher, Montana State University, Bozeman, Montana 59715. (406)994-3402

1973 DIRECTORY REFERENCE: pp. 374-5.

Since our final report we have been unsuccessful in obtaining added funding to carry forth an active program in environmental awareness. We are incorporating some into on-going programs, but as yet it is not at the level that is needed.

-Charles H. Rust
Program Coordinator

ERIC DOCUMENT:
Montana Cooperative Extension Service. Final Report. SE 018 153

PROGRAM TITLE: POWELL COUNTY ENVIRONMENTAL CENTER

DIRECTOR: Gary D. Swant, 710 Missouri Avenue, Deer Lodge, Montana 59722. (406)846-2757

1973 DIRECTORY REFERENCE: pp. 378-80.

ERIC DOCUMENTS:
1. A Field Guide to Outdoor Learning in Powell County, Biome Descriptions, Field Activities, Field Sites. ED 069 468
2. The Rock Cycle, or It's Hard When You're a Rock. ED 079 047
3. The Oxygen Cycle. ED 079 048

PROGRAM TITLE: 6TH GRADE SCHOOL CAMPING

DIRECTOR: Mack Peyton, Director of Outdoor Education, Chadron State College, Chadron, Nebraska 69337. (308)432-5571 Ext. 348

1973 DIRECTORY REFERENCE: pp. 386-7.

The 6th grade camping program is continuing under the format established and listed previously, except that we have added three additional area schools to the program.

A physiological study of all students on our graduate course - HPER 537 (Wilderness Trip) - is in preparation.

-Mack Peyton

ERIC DOCUMENT:
Outdoor Environmental Education. An Innovative and Exemplary Approach to Pre-Service and In-Service Teacher Education. ED 067 236

PROGRAM TITLE: EXPERIMENTAL SCHOOLS PROGRAM

DIRECTOR: Richard O. Peters, School Supervisory Union 58,
Groveton Elementary School, Groveton, New Hampshire 03582.
(603)636-2241.

1973 DIRECTORY REFERENCE: pp. 390-2.

At this time, the Union 58 ESP project does not have the appropriate program information and data on its Outdoor Education Program for reporting. During the 1974-75 school year, ESP will develop its program and gather data that would be appropriate for dissemination in future ERIC/SMEAC documents.

-R. Peters

ERIC DOCUMENT:
Strategies to Affect Student Awareness of Natural and Social Environments in Outdoor Education: A Resource Guide. ED 092 300

PROGRAM TITLE: CONSERVATION AND ENVIRONMENTAL STUDIES CENTER, INC.

DIRECTOR: Dr. V. Eugene Vivian, Box 2230, R.D. #2, Browns
Mills, New Jersey 08015. (609)893-9151

1973 DIRECTORY REFERENCE: pp. 395-6.

The Conservation and Environmental Studies Center (CESC) for environmental education came into being early in 1966, when Dr. V. Eugene Vivian, then science department chairman at Glassboro State College, envisioned such a center linking the College with a number of school districts in southern and central New Jersey.

Funds to develop CESC were sought from the U.S. Office of Education with the Glassboro Public School District as the sponsoring agent, under Title III of the Elementary and Secondary Education Act of 1965. A Planning Grant was approved in September 1966, and was extended for 16 months until a three-year operational grant was approved on February 4, 1968. CESC concluded its third and final year of Federal support from Title III on January 31, 1971.

CESC's initial consortium involved 18 school districts. The number has grown to more than 150 school districts.

A week-long Resident Environmental Education Program for school classes and their teachers has been underway since 1966. This highly successful program utilized modern, winterized buildings located at Mt. Misery, which adjoins Lebanon State Forest.

The location in the heart of the New Jersey Pine Barrens provides the students with a unique wilderness area for environmental studies.

CESC staff, (all of whom hold master's degrees), work with participating school districts, teacher training, and a very effective high school aide program. Under the directorship of Dr. Vivian, CESC staff members have produced vitally needed curriculum materials in all subject areas. These Environmental Education Instruction Plans provide a basic structure which allows each classroom teacher to incorporate E.E. into appropriate curriculum areas.

In September 1969, CESC established permanent offices at Whitesbog on 63 acres leased to CESC Inc. by the N.J. Department of Environmental Protection. Renovation of two buildings into the Elizabeth C. White Reception Hall and Haines Hall created two classrooms and administrative and staff offices. At Whitesbog, CESC conducts a day-long field study program in environmental education, for which more than 40 activities have been developed. The outstanding feature of these day programs is a mini-curriculum outlining pre-trip preparation, an actual lesson summary post-trip classroom follow-up and an evaluation, all of which are mailed to the teacher in advance of a scheduled visit. CESC has developed special day lessons for winter ecology and for studying pollution in urban environments.

For schools desiring a K-12 environmental education program, CESC has developed a full program of published materials. Intensive study programs ranging from two to five months are now available for use with or without resident activities.

Publications: (Available from CESC)

1. Sourcebook in Environmental Education by V. Eugene Vivian. Published by Mosby-Times Mirror, 11830 Westline Industrial Drive, St. Louis, Missouri 63141
2. Special Environmental Education Teacher Guides.

a.	Exploitation of the Pine Barrens	$1.00
b.	Guidebook for Resident Environmental Education Programs (for local education agency)	2.00
c.	Laboratory Experiences in Marine Biology Teacher Edition	2.00
d.	Laboratory Experiences in Marine Biology Student Edition	2.00
e.	Marine Science Sourcebook	1.50
f.	Teacher's Handbook for Resident Environmental Education Programs	2.00
g.	Environmental Control-Legal Advantages and Disadvantages	3.00
h.	A Manual for Detecting Pollutants in Air	6.00
i.	Population and Overcrowding	2.00
j.	Biological Aspects of Water Quality Monitoring	4.00

3. Environmental Education Instruction Plans $2.00 each
Code: P=Primary, I=Intermediate, UE=Upper Elementary-Junior High S=Secondary

a.	A Cleaner World - Litter & Solid Waste Studies	UE-J
b.	Angling for an Unknown Dimension (Mathematics)	UE-J
c.	Art & Design in the Environment	I-UE-J
d.	Cemetery Study	I-UE-J
e.	Founding a New Settlement-Survival Skills	I
f.	Is There a Better Way? - with Conservation Posters	I-UE-J
g.	Land Use-Concern-Challenge-Commitment	J-S
h.	North, South, East, West - Map and Compass Study	I-UE
i.	Physical Study of a Jetty	UE-J
j.	Water - The Waste of Plenty	UE-J
k.	Soils	UE-J
l.	Succession	I-J-S

4. CESC Supplementary Curriculum Materials $.10 a copy
   a. Blueberry Queen
   b. CESC - Impact
   c. Definition of Environmental Education
   d. Here's What You Can Do About Air Pollution
   e. Jersey Devil - $.20
   f. Quadrat Study Guide
   g. What You Can Do To Improve Your Environment
   h. A Deserted Farm Trip
   i. Dirty Air Definitions
   j. Ecology - An Overview
   k. Exploring a Deserted Historic Site
   l. Exploring Old Cemeteries
   m. Operation Nightwatch
   n. Star Guide Study
   o. Study of a Rotting Log
   p. Stump Scouting
   q. Tips for Field Trips
   r. The CESC K-12 Environmental Education Sequences
   s. Multidisciplinary Environmental Education Packages -$3.00 How to combine units from more than one subject area in a unified approach. May be used as part of a resident program or based entirely in the classroom.

5. Water Quality Study Materials
   a. Water Quality Lab $110.00 plus shipping and handling charges.
   b. Biological Effects of Fluctuating Water Levels - Fresh Water (secondary) .50
   c. Biological Effects of Tidal Fluctuations of Bays and Estuaries (secondary) .50
   d. Capacity of a Watershed (intermediate-secondary) .50
   e. Detecting Biological Pollutants in Fresh Water (secondary) .50
   f. Pond Life (intermediate) .50
   g. Water Quality Study-Physical and Chemical (intermediate and secondary) .50
   h. What's in a Pond (primary) .50
   i. Life in Fresh Water Wetlands (intermediate) .50

-V. Eugene Vivian

PROGRAM TITLE: ENVIRONMENTAL EDUCATION KIT FOR THE PRIMARY GRADES

DIRECTOR: Ms. Judith Zimmerman, The Committee for a Better Environment, Inc., P.O. Box 209, Holmdel, New Jersey 07733. (201)946-3140

1973 DIRECTORY REFERENCE: pp. 401-2.

The Committee for a Better Environment Education Kits, which were used for the past two years in our Federal and State Funded environmental education program, are available again this year for loan, at no cost, to public and private elementary schools. Since our loans have expired, we are subsidized only by contributions and volunteer efforts.

Each of our kits is a footlocker full of a wide variety of materials and equipment for introducing environmental subjects to grades K-3, and is complete with a manual and suggestions for use of the materials provided. We have six of these self-contained kits complete with manuals.

This year the kits will contain several new features which we have included as a result of valuable feedback from teachers who have previously used the kits. In addition to all the materials and equipment included in the past, we now include several new experiments, annotated bibliographies of books and filmstrips, suggestions for fieldtrips for on-sight learning, addresses and numbers of places to call or write for free or inexpensive information, a recycling recipe complete with equipment, additional activities and ideas for an interdisciplinary approach to the teaching of the environment, plus several new projects for more individualized and open approaches to learning.

The kits will be kept at my home in Colts Neck, New Jersey and will circulate from here. I explain the use of the kit to teachers who come to pick them up. I am also available to consult with teachers as they make use of the kits in their classrooms.

-J. Zimmerman

PROGRAM TITLE: EDUCATION FOR SURVIVAL: ECOLOGY IN SCIENCE AND SOCIAL STUDIES

DIRECTOR: Ruth Grubman, North Jersey Conservation Foundation, 300 Mendham Road, Morristown, New Jersey 07960. (201)539-7540

1973 DIRECTORY REFERENCE: pp. 403-4.

Indices have been prepared for volumes 1 and 2 of the Education for Survival and will be included in future editions. Visual aids for classroom use are being developed to supplement the guides.

-R. Grubman

ERIC DOCUMENT:
Ecology in Science and Social Studies Curriculum. Guide for Grade V. ED 066 359

PROGRAM TITLE: RIDGEWOOD PUBLIC SCHOOLS ENVIRONMENTAL EDUCATION PROGRAM

DIRECTOR: Clifford E. Knapp, Ridgewood Public Schools, Division of Instructional Services, Education Center, 49 Cottage Place, Ridgewood, New Jersey 07451. (201)444-9600

1973 DIRECTORY REFERENCE: pp. 405-6.

The Ridgewood Public Schools continue to innovate with environmental education approaches in grades K-12. Program emphasis has been placed more recently upon techniques which promote environmental awareness and values clarification. An increasing stress has been directed toward the affective area of education.

Plans for the future incorporate expansion of the program to more grade levels. The establishment of outward bound type exercises in the community is also planned.

-C. Knapp

PROGRAM TITLE: IMPLEMENTATION OF THE NEW JERSEY STATE MASTER PLAN FOR ENVIRONMENTAL EDUCATION

DIRECTOR: Dr. Edward J. Ambry, New Jersey Council for Environmental Education at Montclair State College, Upper Montclair, New Jersey 07043. (201)744-0362

1973 DIRECTORY REFERENCE: pp. 409-12.

During the past year, the Council has continued its effort to carry out the Master Plan for Environmental Education. One result is the development of a K-12 curriculum available to all teachers in New Jersey as Computer Based Resource Guides.

The CBRG includes five major components: learning objectives, content, activities, measuring devices and a list of annotated materials such as books, films, simulation games, etc. Once these components have been generated, they are coded to a variety of student interests, developmental tasks and skill levels such as mental age and reading level. All are related directly to specific objectives.

The computer is a retrieval center and the material which the teacher receives is not prescriptive nor does it impose any particular method of instruction, but does allow the teacher to be the decision maker. It also possesses particular advantages as a resource for individualized instruction.

As the Computer Based Resource Guides became available, the Council conducted an aggressive training program in New Jersey's twenty one counties. A film called "Keeping Up" and a training kit containing an audio cassette, two film strips, a poster and some written materials, were developed. This package has been used extensively across the state in the training of over 6,000 teachers and has been widely introduced in the Northeastern states.

To provide environmental education opportunities for teachers, the Council worked with a number of colleges and universitites in the development of the masters degree program and in the formation of pre-service courses. With the cooperation of the State Department of Education's Division of Curriculum and Instruction, the Council assisted in presenting a series of in-service courses.

The Council purchased the copyright to a 15-part documentary educational television series produced by Miami-Dade Junior College in Florida. Adapting these environmental programs to use in New Jersey, the Council arranged with the Public Broadcasting Authority and the Public Broadcasting Service to televise them on a semester schedule. This program received statewide support through the New Jersey Education Association. Promoted among the state's colleges, the "Man and Environment" course offering has been coordinated with programs in environmental education, science and society, and in-service teacher training. The Council produced teacher, student and in-service guides, which when supplemented by a full text prepared by Miami-Dade, provided a complete environmental education package.

-Charlotte A. Tomaszewski
Coordinator of Public Information

ERIC DOCUMENTS:
1. Resource Guide to Environmental Education. ED 081 591
2. Environmental Education in New Jersey. Statewide Survey Report. ED 090 174
3. Environmental Education CBRU Manual. SE 018 425

PROGRAM TITLE: SCIENCE RESEARCH AND RESOURCE CENTER

DIRECTOR: Robert K. Maxwell, 200 W. Chisum Street, Roswell, New Mexico 88201. (505)622-8942

1973 DIRECTORY REFERENCE: pp. 418-20.

There has been no change in our program. We offer classes at the Science Center for high school students for credit. Classes are offered in Astronomy, Field Biology, Advanced Field Biology (Contract courses), and Geology. In addition we maintain a natural science gallery where students may come on field trips from all schools to see both animal and mineral exhibits in natural settings. The primary instructor gives teacher training assistance to elementary teachers on a regular basis, as well as presenting elementary science units in some schools. This is a very fine physical facility and is well staffed by a professional staff of two persons.

-R. K. Maxwell

PROGRAM TITLE: WAVE HILL CENTER FOR ENVIRONMENTAL STUDIES

DIRECTOR: Betty F. Greenfield, 675 W. 252nd Street, Bronx, New York 10471. (212)K19-2055

1973 DIRECTORY REFERENCE: pp. 421-2.

OUTDOOR EDUCATION

Wave Hill provides a program for classes of school children visiting the garden. Each class is taken on the nature trails by a member of the interpretive nature staff. The emphasis of the program is on increasing the children's abilities to perceive and appreciate the natural world as an integral part of their lives. During 1973, 10,000 New York City school children participated in this program.

In addition, workshops are offered for teachers to train them in techniques of outdoor education and in bringing perception of the natural world to bear on classroom curriculum. In 1973, 500 teachers participated in these training programs.

HORTICULTURAL EDUCATION

The horticultural education program is conducted for school children and their teachers, the elderly, the handicapped and those in medical rehabilitation centers.

In the New York City public school system, Wave Hill initiates classroom and rooftop gardening programs designed to insure maximum growing success and to enrich the curriculum. Ecological processes and concepts, revealed through growing plants, are applied to problem solving and reading programs so as to improve the children's skills in language arts, arithmetic and science.

Offered to the elderly, the handicapped and to residents of medical and drug rehabilitation centers, the program provides a recreational, occupational and rehabilitative activity through the teaching of practical skills.

WATER RESOURCES EDUCATION

Wave Hill offers programs for elementary and junior high school students to demonstrate through the use of specific biological sampling tools, the richness of estuarine life remaining in the waters around New York City. The programs include field trips, sailing trips on the Hudson during which students participate in sampling excercises, installation in classrooms of aquaria stocked with local fish, and conferences at which students meet and talk with authorities on the estuarine system.

SPECIAL EVENTS

Adult programs dealing with plants, estuarine resources and other topics relevant to the New York City environment are conducted by Wave Hill. These workshops, lectures and field trips are offered on a fee basis.

-B. F. Greenfield

PROGRAM TITLE: TOTAL EDUCATION IN THE TOTAL ENVIRONMENT (T.E.T.E.)

DIRECTOR: William R. Eblen, P.O. Box 297, Bronxville, New York 10708. (914)337-1636

1973 DIRECTORY REFERENCE: pp. 428-30.

Current Activities

National Regional Workshops (Total Environment School-Community) were held for all fifty States under USOE funding during 1972-73. They were held in California, Georgia, Illinois, Massachusetts, Nebraska, Texas, Virginia and Washington. An International Conference was held at MIT in June of 1973.

A pilot seminary on environmental education methodology in East Africa was co-sponsored by the United Nations Environment Programme (UNEP) in August - September 1974, in Kenya, at the Mombasa Polytechnic. The seminar was organized in cooperation with the International Union for the Conservation of Nature and Natural Resources (IUCN) and the World Confederation of the Organizations of the Teaching Profession (WCOTP). The seminar was designed to field test, in the East African context, the environmental education methodology developed by Total Education in the Total Environment (T.E.T.E.). The participants concluded that the Total Environment Approach developed by T.E.T.E. provides methodology applicable to the needs of developing nations. Sharing and comparing interdisciplinary teaching strategies and techniques was considered a most useful and productive counterpart of the seminar. Participants in the seminar from Ethiopia, Ghana, Kenya, Tanzania, Uganda and Zambia, represented a broad spectrum of African education and included leaders of national teachers' organizations, teacher educators and representatives of Ministries of Education. Observers attending from intergovernmental agencies included UNEP, United Nations Educational, Scientific and Cultural Organization (UNESCO) and Science Education Programme for Africa (SEPA).

A basic manual, The Total Environment Approach to Learning, and a corresponding slide-tape presentation were both prepared in 1974.

Funding was received by T.E.T.E. during 1973-74 from the General Service Foundation, United Nations Environment Program (UNEP), Exxon Corporation and AMAX (American Metal Climax, Inc.).

Future Plans

T.E.T.E. is planning a series of environmental education seminars and related activities in Africa, Asia and Latin America. The objective is to reinforce techniques and strategies initiated and evaluated at the pilot seminar held in Kenya.

T.E.T.E. is preparing additional materials including manuals on the Total Environment Approach to specific disciplines and corresponding audio visuals.

-W. R. Eblen

PROGRAM TITLE: PRATT INSTITUTE CENTER FOR COMMUNITY AND ENVIRONMENTAL DEVELOPMENT

DIRECTOR: Ron Shiffman, 240 Hall Street, Brooklyn, New York 11205. (212)622-5026

1973 DIRECTORY REFERENCE: p. 423.

The Pratt Institute Center for Community and Environmental Development is a technical assistance and advocacy planning organization. Its staff works with civic groups and grassroots community organizations providing free professional services to its "clients". The Center acts as a bridge between the community and government agencies by seeking community-preferred solutions to the physical, economic, social, and environmental problems of the community. The services provided the client, whether a study of land use or a complete architectural plan, are intended to balance the relationship between government and people by giving the community the technical expertise to share in the decision-making process.

The Center, working primarily in Brooklyn, is currently providing planning and architectural design assistance to community groups in Northside, Coney Island, Park Slope, Red Hook, and South Brooklyn; a team of environmental designers is helping a number of areas to recycle abandoned buildings for use as neighborhood day care and senior citizen facilities; and a wide-ranging public education program is providing specific information on current projects and general information on developments in the fields of housing, health, education, and the environment.

-R. Shiffman

ERIC DOCUMENT:
Project Summary-Environmental Education Grant Final Report.
SE 018 132

PROGRAM TITLE: COMMUNITY AWARENESS PROJECT IN ECOLOGY

DIRECTOR: Dr. Richard Bamberger, Maple Hill Road, Castleton, New York 12033. (518)732-7701

1973 PROGRAM REFERENCE: pp. 424-5.

The Community Awareness Project in Ecology at Maple Hill High School is in its third year during 1974-75. During August of 1974 a one-week outdoor experience for the students in the class was held in the Adirondack Mountains. This week provided a rapport-building experience and allowed the students and teachers to develop an effective working-learning relationship. During the classroom portion of the year students study about ecology and environmental problems through a multi-disciplinary approach which includes outside consultants, films, readings, lectures, and discussions, particularly student-led discussions. Investigations of air, land, and water are taught to the students from a scientific point of view. A primary goal of the year is to work toward the planning, development, and eventual building of an outdoor education center. Exchange student programs will be established with other schools, particularly in the winter of 1975 as a means of directly sharing information and ideas about what can be done in environmental education. Throughout the year direct contact with local and state legislators will be stressed to inform and exchange ideas with them.

Close to half of the class time (two full hours a day) is devoted to individual projects. We anticipate that the TERRA students for

1974-75 will involve themselves in these kinds of individual projects: continue the two-year old paper, glass, and metal recycling; continue testing for coliform, phosphate, nitrate, dissolved oxygen concentrations and PH for the Vlockie Kill, Papscanee Wetlands and Hudson River; continue publication of the quarterly TERRA newspaper; continue as member of The Capital District Transportation Study Bicycle Task Force continue as member of the Schodack Conservation Advisory Council, the Rensselaer County Recycling Groups, and the Rensselaer County Environmental Management Council; construct and expand the use of the outdoor ecological center for the school district; continue teaching environmental studies in the district's elementary schools; construction of a pocket park for the Town of Schodack; continue working towards county-wide recreation trails; continue public speaking and TERRA-prepared audio-visual presentations to the community; continue writing a daily record of individual and class growth and progress; continue intensive self-study on units dealing with energy, transportation, solid waste, and other major environmental concerns; continue to write articles for local newspapers and broadcasts detailing environmental concerns and significant progress.

-R. Bamberger

PROGRAM TITLE: PROJECT EARTH: AIRPORTS

DIRECTOR: Susannah Lippman, Education Division, WNET/13, 304 West 58th Street, New York, New York 10019. (212)262-5582

DIRECTORY REFERENCE: pp. 434-5.

As an extension of an environmental-media project between WNET/Channel 13 (New York) and students in the Great Neck, NY and Union, NJ public schools in which students made films about the environmental problems caused by airports in their areas, a half hour program was produced by WNET entitled First Films. In this program which was produced with grants from the Joe and Emily Lowe Foundation and the Office of Environmental Education, four of the students discussed their experiences with Roger Larson and Jim Painten from the Young Filmmakers' Foundation, consultants to the project.

During their discussion, the students revealed the problems of translating their ideas on the project into a medium in which they had no prior experience. They discussed their workshops, their production work and the decision-making process.

Also shown on the program were exerpts from the documentaries which the students made for PROJECT EARTH: AIRPORTS.

First Films, according to Mr. Larson, "brings into focus the full circle of planning through final editing that each student faced in making the project a reality. The program enables us to share these experiences with other students in the area who may want to consider expressing their ideas in film."

-Susannah Lippman

PROGRAM TITLE: CLEARWATER HISTORICAL AND ENVIRONMENTAL EDUCATION PROGRAM

DIRECTOR: Joseph R. Phillips, 88 Market Street, Poughkeepsie, New York 12601. (914)454-7673

1973 DIRECTORY REFERENCE: pp. 436-8.

The Hudson River Sloop Restoration Inc.'s education program is designed to reach the maximum number of children possible, each child has one day aboard the sloop. This instills a real curiosity and excitement about the river in the mind of the child and enables the individual teachers involved to recreate, back in the classroom, the excitement the student found on Clearwater. This applies to the entire community as well. Once the sloop has left, people in the area who have become members of HRSR through the school program, keep involved through their monthly newsletter, membership sails, their local sloop clubs, and the other activities of HRSR.

The on-board education program consists of acquainting students with:
1. the pecularities of this type of ship;
2. the role sloops played in building a civilization along the Hudson River;
3. the technology that outpaced the era of the sloops;
4. the impact of that technology on the environment;
5. some geologic processes involving the river's past and present course;
6. a comparison of the present biota of the river with that of its past biota;
7. measurements of the physical parameters of the river;
8. pointing out various polluters and their detrimental practices along the Hudson;
9. how students might get involved in the improvement of their local area of the Hudson River Valley.

The basic thrust of this program, like any HRSR activity, is involvement at all levels because it will take the hard work and dedication of all people concerned with the fate of the Hudson to solve the problems facing it. When Clearwater sails away, the people of the city, town or village must remember this and carry on the work the Clearwater visit began.

-Joseph R. Phillips

PROGRAM TITLE: ENVIRONMENTAL STUDIES INSTITUTE OF SYRACUSE UNIVERSITY

DIRECTOR: Dr. William C. Ritz, 213 Huntington Hall, Syracuse University, Syracuse, New York 13210. (315)423-4217 or 423-4218

1973 DIRECTORY REFERENCE: pp. 439-40.

Due to problems encountered, the Syracuse Environmental Awareness Tests (SEAT) are not expected to be available for widespread distribution in the immediate future. The EE pamphlet series has been delayed, but the first pamphlets should become available for purchase soon; details on availability will appear in forthcoming issues of the ESI Newsletter, which continues to be published 4-6 times per year. Currently available from ESI: "Review of Audio-Visual Materials for EE" (First Edition)--ratings and critiques, prepared by teachers, relative to each item's content, anticipated impact, length, and overall quality ($1.00, postpaid).

Recent activities at ESI include:
1. Summer Institute in Environmental Studies for Secondary School Teachers of Science and Social Science, (Summer 1973), NSF-supported.
2. Leadership program for the dissemination of "Environmental Studies for Urban Youth" in the Great Lakes region, (1974-5), NSF-supported.

-W. C. Ritz

PROGRAM TITLE: PROJECT TO ENHANCE THE LAYMAN'S AWARENESS OF THE ENVIRONMENTAL IMPACT OF PHYSICAL, SOCIAL AND ECONOMIC CONDITIONS UPON THE QUALITY OF LIFE IN WESTCHESTER

DIRECTOR: Mrs. David C. Donaldson, Federated Conservationists of Westchester County, Inc., Box 1306, Marymount College, Tarrytown, New York 10591. (914)631-8336

1973 DIRECTORY REFERENCE: pp. 441-2.

Objectives and goals of program:
1. Enhance general public awareness of environmental problems and of the available means toward their solution.
2. Activate organizations which are not environmentally conscious to develop an environmental component as part of their principal areas of interest.
3. Broaden the involvement of single-purpose environmental groups.
4. Enhance FCWC's ability to stimulate and coordinate the activities of its growing organizational membership.
5. Enhance the applied community-oriented component of elementary, secondary, and higher education within the County.

6. Increase official governmental concern with the need to address promptly environmental problems of all types, at all levels, through (a) encouraging the establishment of additional official conservation advisory councils, and (b) encouraging the institution of programs designed to eliminate substandard conditions wherever they may exist.

Target population: 894,104 (in 1970).

Activities:
Founded in 1965 as a coalition of environmentally concerned organizations, FCWC has grown to 65 member organizations with a combined membership of about 6,000. Our activities for 1973-74 represented a considerable expansion over previous years as funding enabled us to have an office and a full-time staff. We held an 8-session course at Westchester Community College in the fall of 1973 entitled Environmental Law for Laymen; a conference on the NYS 1973 Transportation Bond Issue; worked with the Taconic State Park Commission in eliciting public opinion on the proposed state part at Rockwood Hall; initiated river task forces for the Bronx and Saw Mill Rivers in Westchester, concerned with monitoring water quality, especially in conjunction with construction projects; held a public meeting at which environmentalists throughout the County were invited to meet with Westchester's new County Executive to discuss County environmental concerns with him; completed and publicized the first Environmental Attitude Survey of Westchester County Candidates for Elective Office; between January 1973 and March 1974 gave testimony or statements at 14 public hearings on matters of particular concern to Westchester - this is ongoing and continual, the most recent being before the N.Y.S. Sub-committee on Freshwater Management on a Freshwater Wetlands Management Act, on September 18, 1974; FCWC co-sponsored in May, 1974 with the County Executive, the Westchester Community Service Council and the League of Women Voters of Westchester a series of meetings with County officials on Programs and Priorities for County Government 1975; and most recently sponsored a conference on The Future of Westchester Parks.

Plans for the future:
Many of these programs are ongoing, such as the river task forces, which will be working on the development of a slide presentation to be offered to the County as an aid in training employees involved with maintenance of the Bronx River Parkway parklands towards ecologically sensitive management and the completion of a pictorial presentation on the Saw Mill River highlighting present river status and its potential as a conservation and recreational resource for the County, the environmental attitude survey of candidates, hearing statements, and conferences. In cooperation with Polytechnic Institute of New York and the Westchester County Environmental Advisory Council FCWC has planned two day-long forum workshops on Wetlands and Drinking Water. We are cooperating in three courses to be held

by Westchester Community College: Recycling World Resources; Natural Resource Inventory Training Workshop; and Ecology of Westchester County.

Ongoing services and publications:
FCWC has files and a resource library available to teachers, students and any interested person; we answer multitudinous requests for information.

FCWC publishes a monthly environmental calendar of events that goes to a mailing list of almost 900. The FCWC Westchester Environmental Directory was published for the first time in the Spring of 1974 and widely distributed throughout the County. We hope to publish an updated version in 1975. GrassRoots: An Occasional Newsletter is at the printer and it is tentatively planned as a quarterly.

None of this material is copyrighted.

-Mrs. David C. Donaldson

PROGRAM TITLE: ECOS TRAINING INSTITUTE (THE AREA EDUCATION AGENCY'S ROLE IN ENVIRONMENTAL EDUCATION)

DIRECTOR: Dr. Francis J. Thompson, Bldg. 8, 833 Fox Meadow Road, Yorktown Heights, New York 10598. (914)245-4009

1973 DIRECTORY REFERENCE: pp. 443-5.

The ECOS Training Institute is a federally funded program (under Title III of ESEA) designed to train instructors to solve a wide variety of educational problems. The Institute is an outgrowth of Project ECOS, a three year federally funded program developed to create environmental awareness in the Putnam-Northern Westchester BOCES district.

The Institute offers workshops for educators in the field of K-12 environmental education, the educational change process, career education, water resource monitoring, and community-school cooperation. All the workshops are based on environmental case studies from the past three years.

Districts interested in attending the workshops should contact their State Facilitator of ECOS. There is no charge for the training workshops.

-F. J. Thompson

PROGRAM TITLE: ENVIRONMENTAL STUDIES

DIRECTOR: Dr. Fielding L. Fry, P.O. Drawer 600, Beaufort, North Carolina 28516. (919)728-4651

1973 DIRECTORY REFERENCE: pp. 446-7.

This project is now funded entirely with local funds, having concluded the Title III grant in July 1974. The new name is Environmental Studies. It is now operating in the two high schools of this county and has had acceptance in other school districts around the country.

Three publications are now ready for distribution:

16mm Film: "Improvement Through Involvement" - Open Education in Secondary Schools. 19 min. Sale: $300.00; Rent: $25.00; Review: free.

Book: Open Education in the Secondary School. Describes the method, philosophy and effect of the project. 200 pp. $2.00 per copy. Review copy: free.

Teaching game: Open Exchange. Developed to help adults learn to deal non-judgementally and non-directively with others, especially the young. 1 complete set: $1.00. Review copy: free.

-F. L. Fry

ERIC DOCUMENTS:
1. Student Project Work and Abstracts. Beaufort Environmental Studies Project, No. 1. ED 086 495
2. Student Project Work and Abstracts. Beaufort Environmental Studies Project, No. 2. ED 086 496
3. Open Education in the Secondary School. ED 092 398

PROGRAM TITLE: ELEMENTARY ENVIRONMENTAL PILOT PROGRAM: VALUES CLARIFICATION

DIRECTOR: Charles T. Vizzini, Charlotte-Mecklenburg Schools, P.O. Box 149, Charlotte, North Carolina 28201. (704)372-8620 Ext. 267

1973 DIRECTORY REFERENCE: pp. 448-9.

Valuing the Environment is an elementary program for grades 1-6 utilizing interdisciplinary environmental packets that are based on clarifying values. The program strives to develop an awareness and a better understanding of the community and of this "space-ship" earth.

Objectives:

1. To promote in children those sensitivities, concepts, and attitudes which will help them become better aware of environmental problems and to encourage development of the competencies necessary to seek adequate solutions.
2. To establish the valuing process as the means to accomplish these sensitivities, concepts, attitudes and skills.
3. To encourage an increased awareness by the community of environmental needs.

Methods:

Teachers use encounters (field and hands-on experiences) from any of the following themes to complement the existing materials being taught at their grade level:

Topical Themes:

1. PLANTS AND ANIMALS: Give and Take
2. WATER: Liquid Life
3. AIR: Air Today-Gone Tomorrow
4. ENERGY: Go Power
5. NATURAL RESOURCES: Treasures of Our Earth
6. LAND USE: Mirror of Values
7. AESTHETICS AND POLLUTION: Good and Bad

Each encounter includes: a basic introduction as background for the teacher; behavioral objectives that are to be met by the students; a field type activity on the school grounds or in the community; several values clarification strategies that can be interwoven into the discussion and/or activity. Some encounters may have more than one activity with hands-on experiences.

In addition to the encounters, sixth grade students participate in a planetarium program, "Viewing the Earth From Space," as a culminating part of this program and a sequential part of the planetarium usage for the school system.

Valuing the environment is a pilot study at Cotswold Elementary School, but will be available to other elementary teachers in the East Mecklenburg feeder area during 1974-75, and other feeder areas, 1975-76.

-C. T. Vizzini

ERIC DOCUMENT:
Valuing the Environment. SE 018 504

PROGRAM TITLE: ENVIRONMENTAL EDUCATION CENTER

DIRECTOR: Dr. Larry Liggett, 13 Veterans Drive, Oteen, North Carolina 28805. (704)298-3707

1973 DIRECTORY REFERENCE: pp. 454-5.

The program is set up for public and private sixth grade students in the schools of North Carolina. The mission of the Environmental Education Center is to foster within sixth graders in participating school populations knowledge about and positive attitudes towards the environment and man's role in the environment.

MAJOR OBJECTIVES
1. To help participating sixth graders become more informed about the environment and man's relationships with it.
2. To create among participating sixth graders positive attitudes towards the environment and man's relationships with it.
3. To develop among the teachers of participating sixth graders a competence to educate their students about the environment and man's relationships with it.

TENETS OF OPERATION
1. Sixth graders are the most sophisticated students yet generally still found in a self contained classroom.
2. The best approach to environmental education is one that is essentially an interdisciplinary humanistic approach.
3. School sites make adequate environmental education sites if used properly.
4. There should be, where possible, a minimum of two teachers from each school.
5. Follow-up of an in-service program is of vital importance.
6. Locally prepared and adapted materials provide the most relevance to a curricular program.
7. Environmental education must include these three components:
    a. Abiotic factors
    b. Biotic factors
    c. Cultural factors
8. Learning in environmental education is a three-step developmental process.
    a. Awareness
    b. Information
    c. Decision Making
9. Teaching environmental education is a way of living.

ACTIVITIES OF THE CENTER
1. Teacher education.
2. Community education.
3. University course in environmental education for teachers.
4. School in-service, renewal credit courses.
5. Resource center; audio-visuals.
6. Reference center.
7. Curriculum development in general environmental education.

8. Program development in topics of pollution.
9. Regional consultant service.
10. A regional community coordinating agency.
11. Classroom instruction.
12. Information dissemination agency.

VALIDATION 1974-1975
"Millions of dollars are allocated annually to state and local education agencies for programs to stimulate improvement of education. In many cases, the programs succeed. They produce significant changes in learner achievement. By sharing the success of such programs and practices, the benefit to education and to learners can multiply itself many times." (Validation Handbook)

Validation efforts focused on projects funded by Title III of the Elementary and Secondary Education Act (ESEA), which operated under a legislative mandate to fund exemplary practices as demonstration sites for educational innovation. Three major categories were validated (1) effectiveness/success, (2) cost information, (3) exportability.

The Cooperative Environmental Education Project (CEEP) is such a project. In April, 1974 the project was submitted for validation and accepted.

Funding for the 1974-1975 school year was secured through the N.C. State Department of Public Instruction, Division of Development, ESEA Title III to act as a demonstration site. Throughout this academic year the Environmental Education Center will be endeavoring to disseminate throughout North Carolina schools as many of the materials and activities that have been proven to be successful as is feasibly possible.

-L. Liggett

ERIC DOCUMENTS:
1. Population: A Position Paper on Population. SE 018 496
2. Sounds and Noises: A Position Paper on Noise Pollution. SE 018 497

PROGRAM TITLE: ENVIRONMENTAL SCIENCE STUDY CURRICULUM (ESSC)

DIRECTOR: Wende Allen, ESEA Title III, P.S. Jones Junior High School, Bridge Street, Washington, North Carolina 27889. (919)946-8266

1973 DIRECTORY REFERENCE: pp. 460-1.

Project ended June 30, 1974; for further information, contact Department of Public Instruction, Attention: Jake Brown, Science Education Division, Raleigh, North Carolina.

-W. Allen

ERIC DOCUMENTS:
1. The Conservation of North Carolina's Natural Resources. ED 079 098
2. Ecological Investigations. Curriculum Guide. ED 079 099
3. Water Quality Control Curriculum Guide. ED 079 100

PROGRAM TITLE: CUYAHOGA HERITAGE

DIRECTOR: Joseph Chadbourne, President, Institute for Environmental Education, 8911 Euclid Avenue, Cleveland, Ohio 44106. (216)231-5010

1973 DIRECTORY REFERENCE: pp. 467-8.

The Cuyahoga Heritage Project, an 18-school system environmental education National Demonstration Project in Northeast Ohio, is being test-replicated in five pilot regions in the State of Ohio. Under grants from Federal EPA and Ohio EPA, the five regions are coordinated into a State-wide Monitoring System. Trained teachers and students, under supervision from Ohio EPA District Field Offices, and instruction from local participating State Universities (Bowling Green, Cleveland State, Ohio University, Ohio State, and Wright State), collect specific water quality information to be used for advisory purposes by the State of Ohio EPA. Accompanying training procedures, written and audio-visual materials are under development in anticipation of increasing the numbers of pilot regions in Ohio next year and of initiating similar Projects in other States during 1975-76. Background materials are published and available by requesting a description of the "Environmental Education Guide Series" from the Institute for Environmental Education, 8911 Euclid Avenue, Cleveland, Ohio 44106. All materials may be reproduced without permission.

-J. Chadbourne

ERIC DOCUMENTS:
1. A Curriculum Activities Guide to Birds, Bugs, Dogs, and Weather and Environmental Studies, Second Edition. ED 093 619
2. An Environmental Education Guide for Administrators. ED 093 632
3. A Curriculum Activities Guide to Water Pollution Equipment and Environmental Studies, Volume 3. ED 093 648
4. Institute for Environmental Education, Final Report. SE 018 136
5. A Curriculum Activities Guide to Watershed Investigations and Environmental Studies. SE 018 632

PROGRAM TITLE: LIFE SCIENCE INVESTIGATIONS: MAN AND THE ENVIRONMENT

DIRECTOR: Gary Day, Educational Research Council of America, 614 W. Superior Avenue, Rockefeller Bldg. 312, Cleveland, Ohio 44113. (216)696-8222

1973 DIRECTORY REFERENCE: pp. 469-70.

Man and the Environment is currently undergoing a major revision for a 1976 copyright. The program will be retitled You and the Environment: An Investigative Approach. The main goal during the revision has been to improve the flow of ideas through the Investigations and provide even greater opportunity for students to investigate their own environment. Questionnaires sent to users of the program across the U.S. and Canada were used by ERC to improve the program. Behavioral objectives will now appear in the student text as well as in the teacher's manual. Several new Investigations have been field tested and will appear in the new program. Most of these Investigations relate to the concept of energy flow in the human community. No new games or simulations are being developed.

-Dorothy M. Kirk
Houghton Mifflin Company

PROGRAM TITLE: INTERNATIONAL FIELD STUDIES

DIRECTOR: Walter B. Bohl, Capital University, 680 College Avenue, Columbus, Ohio 43209. (614)236-7179

1973 DIRECTORY REFERENCE: pp. 471-2.

The current activities of International Field Studies are essentially the same as those reported earlier; however, the scope and size of field study activities has increased. New equipment and a total of 15 vans have made more field trips possible. The scope of field trip activities has broadened and the organization is now working with more schools and teachers from different disciplines and educational levels. IFS has increased the size of its staff and amount of equipment; the organization has experienced a growth of about 20% this past year.

During the summer of 1974, IFS worked with the local Girl Scout Council on a special outdoor education program for socially disadvantaged youth. The series of two-week resident camp sessions were held at Barnebey Center for Environmental Studies.

IFS is beginning to get involved with researching the effects of field trip experiences on students. IFS will also be working on the development of more comprehensive centralized educational materials and programs. IFS will be continuing to expand educational field study activities to new areas with new schools and groups such as the Girl Scouts.

-W. B. Bohl

ERIC DOCUMENT:
International Field Studies 1973 Report to the Bahamian Government. ED 086 510

PROGRAM TITLE: AULLWOOD AUDUBON CENTER - A FACILITY OF THE NATIONAL AUDUBON SOCIETY

DIRECTOR: Paul E. Knoop, Jr., 1000 Aullwood Road, Dayton, Ohio 45414. (513)890-7360

1973 DIRECTORY REFERENCE: pp. 473-4.

The Aullwood Audubon Center continues to be a model environmental education facility. The goal and primary objective of the Center is to heighten the quality of environmental encounters and provide a place where land and people can get together to share in the process of living. The important elements in our program are (1) an enthusiastic staff of teachers, (2) a physical facility (building) that promotes excitement, exploration and learning and, (3) a diverse natural area.

Programs include short field trip visits, day-long visits, workshops for teachers, consulting services for local schools, an ongoing teen program, a teaching volunteer program, a lending library, resource file and book store. The Aullwood staff is also actively involved in community environmental matters, i.e. the saving of the Stillwater River as a state scenic stream, proper location of new highways, preservation of local natural areas, and assistance in developing a nearby "new town".

In recent years the Center staff has been actively involved in promoting open, more humane education; the idea of exciting classroom environments conducive to learning, hands-on activities and giving children the opportunity to make choices. The importance of the entire community as an extension of the classroom environment is a concept that we are actively promoting. We feel strongly that a nature center and its staff of teacher-naturalists represent a potential wealth of resources and experiences sorely needed by teachers and children.

-P. E. Knoop, Jr.

PROGRAM TITLE: MOHICAN SCHOOL IN THE OUT-OF-DOORS

DIRECTOR: Ronald Reed, Box 150, Route #2, Perrysville, Ohio 44864. (419)938-3710

1973 DIRECTORY REFERENCE: pp. 477-9.

Twenty-five school districts from Ohio participate, with about 3,000 students, mostly 6th grade, some 5th, some 7th, high school, some pre-school day care. Also involved are 200 adults: teachers who bring classrooms here; college students (student teachers and annual college workshops); other adults attend an adult workshop in June in cooperation with San Francisco State extension program.

We are in the process of becoming a non-profit private institution.

-Ron Reed

ERIC DOCUMENT:
Resident Outdoor Education. A Planning Guide. ED 092 388

PROGRAM TITLE: CENTER FOR THE DEVELOPMENT OF ENVIRONMENTAL CURRICULUM

DIRECTOR: Dennis M. Wint, 4284 Center Street, Willoughby, Ohio 44094. (216)946-1223

1973 DIRECTORY REFERENCE: pp. 481-3.

Objectives:
1. To survey the current philosophical environmental education concepts and to assess available resources which will be judged on a qualitative basis and a descriptive element.
2. To develop a set of instructional objectives for the cognitive and affective areas of learner achievement.
3. To develop an interdisciplinary curriculum for grades K-12.
4. To develop criteria for measuring instructional progress by program participants.
5. To provide for dissemination of the curriculum materials.
6. To conduct leadership conferences and in-service workshops to assist in the implementation of the curriculum.

Historical Profile:
The Center for the Development of Environmental Curriculum was funded for the purpose of the development of an environmental curriculum for grades K-12 that would have application to schools in Ohio. The purpose of the curriculum will be to assist students in the development of the skills of critical thinking to be used when evaluating environmental conditions. Also, the curriculum

will assist with the development of a student who is knowledgeable of socio-cultural and bio-physical components of the environment and the related problems, is aware of alternatives available for solving the problems, and is motivated to work towards their solutions.

Although the curriculum is oriented towards students, the emphasis is oriented towards providing guidelines and techniques for use by the classroom teacher. In order to implement and operate an affective environmental education curriculum, the classroom teacher must be involved. Most school systems are financially unable to hire content specialists to teach the environmental portion of the curriculum.

CDEC was funded for a total of three years. The grant monies ended on August 14, 1974. During the three year period, a total of 34 environmental units for elementary teachers and 34 environmental units for secondary teachers were developed. The environmental units are considered as resource materials and guidelines to be used by the teacher. Student materials are included only in limited cases, and they take the form of worksheets and data sheets.

The 35 elementary environmental units were written by members of the CDEC staff and pilot tested in the classrooms of 70 teachers representing five socio-cultural communities: urban; suburban upper class; suburban middle class; rural; non-public.

Simultaneous with the classroom evaluation, 16 environmental experts reviewed the materials and provided evaluative data and comments. Members of the Ohio Department of Education also provided input.

After tabulating and analyzing all of the data, 20 elementary teachers assisted in the revision of the materials in preparation for publication by the Ohio Department of Education.

The 34 secondary environmental units were prepared by classroom teachers and environmental experts working under the direction of the CDED staff. Classroom evaluation was conducted in 110 classrooms by teachers representing the urban, suburban, and rural communities. Non-public schools totalled approximately 20 percent of the teachers, and were represented in the three communities.

As with the elementary materials, environmental experts and representatives of the Ohio Department of Education provided input as to the quality of the materials. Revision was by 34 secondary teachers and environmental experts following guidelines developed by the CDEC staff.

Current Activities:
The project was terminated following the completion of the goals, the development of an interdisciplinary environmental education curriculum for grades K-12.

The curriculum materials are being formally implemented within twelve Ohio school districts.

Unique Problems:
The most significant problem has been the availability of monies to publish and implement the environmental curriculum. The Ohio Department of Education published and disseminated approximately 15,000 copies of the curriculum for grades K-6. To date, only about 125 copies of the secondary curriculum have been printed for distribution to the twelve schools identified above. No monies have been identified to print and disseminate the secondary curriculum, nor to provide personnel to assist in the implementation of the elementary or secondary curriculum on a statewide basis.

Future Plans:
Most of the implementation needs are being assumed by a related project intitled "Environmental Curriculum" also reported in this Directory.

Publications:
1. Environmental Learning Experiences for grades K-2 (Teachers Guide)
2. Environmental Learning Experiences for grades 3-4 (Teachers Guide)
3. Environmental Learning Experiences for grades 5-6 (Teachers Guide)
4. An Annotated Catalog of Environmental Learning Experiences

(Publications 1-4 are available from the Ohio Department of Education, Division of Instructional Materials, 518 South Wall Street, Columbus, Ohio 43215.)

5. Environmental Learning Experiences for Junior High School Bio-Physical Disciplines
6. Environmental Learning Experiences for Junior High School Socio-Cultural Disciplines
7. Environmental Learning Experiences for Senior High School Bio-Physical Disciplines
8. Environmental Learning Experiences for Senior High School Socio-Cultural Disciplines
9. Environmental Learning Experiences for Junior High School and Senior High School Other Curriculum Areas (Mathematics, Art, Work/Leisure)
10. An Annotated Catalog of Environmental Resources, Volume II

Publications 5-10 are not currently available. Correspondence concerning future availability should be directed to: Richard

J. Dragin, Assistant Director, Projects Development Section, Division of Planning and Evaluation, 65 South Front Street, Columbus, Ohio 43215. (614)466-3825

Evaluation concluded by CDEC has indicated that the curriculum materials are of a high quality and are potentially valuable to the classroom teacher. Specific evaluation reports are available from the project director.

-D. M. Wint

ERIC DOCUMENTS:

1. *An Annotated Catalog of Environmental Learning Resources.* ED 092 387
2. *Environmental Learning Experiences for Kindergarten Through Second Grade.* ED 092 389
3. *Environmental Learning Experiences for Grades Three and Four.* ED 092 390
4. *Environmental Learning Experiences for Grades Five and Six.* ED 092 391
5. *Environmental Learning Experience: Bio-Physical, Junior High School.* SE 018 432
6. *Environmental Learning Experience: Bio-Physical, Senior High School.* SE 018 433
7. *Environmental Learning Experience: Socio-Cultural, Junior High School.* SE 018 434
8. *Environmental Learning Experience: Socio-Cultural, Senior High School.* SE 018 435
9. *Environmental Learning Experience: Other Curriculum Areas.* SE 018 436
10. *Project Termination Report - Center for the Development of Environmental Curriculum.* SE 018 755
11. *Report of the Evaluation of the Environmental Curriculum Materials for Grades Kindergarten Through Six. Supplementary Report to the Project Termination Report - Center for the Development of Environmental Curriculum.* SE 018 756
12. *Summary of the Development, Pilot, Revision and Evaluation of the Secondary Curriculum Materials. Supplementary Report to the Project Termination Report - Center for the Development of Environmental Curriculum.* SE 018 757

PROGRAM TITLE: WORTHINGTON CITY SCHOOLS OUTDOOR EDUCATION DEPARTMENT

DIRECTOR: John Dean Freund, 600 West Dublin-Granville Road, Worthington, Ohio 43085. (614)888-0357

1973 DIRECTORY REFERENCE: pp. 484-6.

Our outdoor/environmental education program has consisted of three phases. They are - land laboratory development and use, field trips, and resident outdoor education. Materials have been developed for each of these areas and are presently being made available to our teaching staff. This year's activities will focus on the development of the outdoor education center classroom area into several interest centers or learning stations. These centers will utilize displays of a bit more formal nature than we have used in the past. The Outdoor Education Department will also be involved with the reprinting of two of our booklets, i.e., Resident Outdoor Education: Policies, Procedures, and Planning, and The Manual for the Outdoor Teacher. New Materials will be developed and printed for a school site spring gardening program as well additional information and work sheets dealing with various environmental topics. Specifically, materials will be prepared which deal with local pollution problems such as noise pollution, air pollution, transportation problems, trends in types and location of housing, etc. As much as possible slide sets will be developed to support many of the topics and printed materials listed above.

-J. D. Freund

ERIC DOCUMENTS:
1. A Teacher's Guide to Studying the Local Community Through Models, Games and Simulation. ED 091 165
2. Metropolitan Environmental Education Resource Study. ED 093 681

PROGRAM TITLE: ENVIRONMENTAL BIOLOGY

DIRECTOR: Mrs. Mary Guess, Bethany Public Schools, 4311 N. Asbury, Bethany, Oklahoma 73008. (405)789-6370

1973 DIRECTORY REFERENCE: pp. 487-8.

In the school year 1973-1974 we collected and sold newspapers for the dual purpose of alleviating the paper shortage and raising money to improve our campus. With the funds we purchased a nice lighted sign.

Other projects included clean-up details about the campus and at our stadium, painting trash barrels our school colors, and removing blacktop from tree areas so they can survive.

This year we plan to continue our paper drive. The funds will be spent for a planter to be put at the base of the sign. We are cooperating with the school board in the work they plan to do to beautify the area.

-M. Guess

PROGRAM TITLE: MOORE OUTDOOR SCHOOL

DIRECTOR: Jimmie Pigg, Moore High School, Moore, Oklahoma 73160. (405)794-1531

1973 Directory reference: pp. 489-90.

Plans this year are to include over 1200 5th graders in the spring and 1200 6th graders in the fall. This will include two days at a public hunting area about 35 miles from our school. This will cover a total of 12 weeks, about 100 students per week.

Using high school student teachers and classroom teachers, we plan to use a teacher-pupil ratio of eight to one. In addition each teacher has received a two day in-service training at the area.

The high school movie making class will put together a 15 minute 8mm film on the outdoor school this year.

Tour units are set up and include the following: ecology of the soil; water ecology; forest ecology; and changing environment.

-J. Pigg

PROGRAM TITLE: ENVIRONMENTAL EDUCATION COMMITTEE OF THE OREGON ENVIRONMENTAL COUNCIL (a private environmental action organization) AND THE OREGON ENVIRONMENTAL FOUNDATION (a private environmental organization concerning itself solely with education and research)

DIRECTOR: Ms. Gay Bower, Education Coordinator for the OEC and Board Member of the OEF; Ms. Ann Hunt, Executive Director of the OEF, 2637 SW Water Avenue, Portland, Oregon 97201. (503)222-1963

1973 DIRECTORY REFERENCE: pp. 501-2.

The Oregon Environmental Council plans to continue its participation and interest in the State Advisory Committee on Environmental Education and the Metro Environmental Education Council (of the Portland and Tri-County area). A relatively new organization, the Oregon Environmental Foundation, has been activated and will concentrate solely on education and research. The OEF will provide grants to grade and high school environmental projects, conduct environmental "fairs", begin an environmental reference library open to the public, financially support educational efforts of other environmental organizations, sponsor studies of particular areas that have or will have impacts on the environment, sponsor participants in various conferences, etc. The OEF is presently updating its Environmental Bibliography and will publish an extended, updated version of the handbook, To Live with the Earth. It foresees taking charge of the extensive environmental information files presently maintained by the OEC. These are open to the public to be used in the OEC office. They may be duplicated.

-Gay Bower

ERIC DOCUMENT:
To Live With the Earth. Revised Edition. SE 018 494

PROGRAM TITLE: MULTNOMAH COUNTY OUTDOOR EDUCATION

DIRECTOR: Warren C. Gilfillan, P.O. Box 16657, Portland, Oregon 97216. (503)255-1841

1973 DIRECTORY REFERENCE: pp. 506-7.

No changes or additions.

-W. C. Gilfillan

PROGRAM TITLE: DEPARTMENT OF ENVIRONMENTAL QUALITY RECYCLING INFORMATION OFFICE

DIRECTOR: Kess Cannon, 1234 S.W. Morrison Street, Portland, Oregon 97205. (503)229-5119

1973 DIRECTORY REFERENCE: pp. 508-10.

The Recycling Information Office program will likely expand in 1975 to a six person staff, with more funds for materials and services, and an extension of our functions to include active development of the recycling movement in Oregon. Among our proposed activities are: strong publicity program using the mass media to arouse public interest in recycling and resource conservation; consultation and technical assistance to planners and government officials so as to provide recycling expertise to those responsible for legislating, planning, and administrating recycling activities; development-oriented fieldwork in regions of the state with special recycling problems or potentials; technical research on source separation and collection of recyclables, source reduction, and materials processing; development of Oregon-operated markets for recyclables and of manufacturing industries which use waste resources in order to meet the full potential of the materials generated locally; development of recovery campaigns for the systematic, regional harvesting of special "waste" resources (phone books, white goods, auto bodies, tires, motor oil): development of recycling in large public and private institutions; coordination of activities and legislation with neighboring states and the federal government.

The emphasis of the office is changing from environmental education to development of a full-scale recycling system which is a part of Oregon's economy and lifestyle.

-Kess Cannon

ERIC DOCUMENT:
A Guide to Running a Recycling Project. Second Edition.
SE 018 510

PROGRAM TITLE: NATIONAL DEMONSTRATION CENTER FOR SELF-LEARNING AND COMMUNITY INVOLVEMENT

DIRECTOR: Donald W. Stotler, 373 Lincoln Hall, Portland State University, Portland, Oregon 97207. (503)229-4682

1973 DIRECTORY REFERENCE: pp. 511-2.

The Environmental Education Center has received additional funds during the funding year 74-75 to not only maintain current programs but expand programming as follows:

The Environmental Education Center has grown and developed from a clearinghouse for environmental information to a community center for environmental self-learning. During its first three years of existence, the Environmental Education Center has attempted to perfect the model of a center which stimulates community interest in environmental problems, provides access to information about these problems, and facilitates individual and group work toward the solution of these problems. During this time, the Environmental Education Center has experimented with and developed an effective model for delivering these services to the community in the self-learning center and Eco-net concepts.

While in the past, the Environmental Education Center has received funding from the Environmental Education Act and other sources to continue developing and refining Environmental Education Center and the local and regional communication and information network necessary to support Environmental Education Center services: during the next year, as a funded national demonstration center, the Environmental Education Center will disseminate these ideas, philosophy, strategies, techniques and processes through:

- providing audio-visual and print information which describes and demonstrates these;
- maintaining a working model of an environmental education center and eco-net;
- consulting with education and environmental programs on applying this model to local needs;
- providing an initial focus for the development of an effective national environmental education information and communication network;
- stimulating and assisting with the development of new environmental and education center and programs across the country.

-Donald W. Stotler

ERIC DOCUMENT:
National Demonstration Center for Self-Learning and Community Involvement. FY 1973-74, Final Report. ED 093 364

PROGRAM TITLE: PROJECT KARE (KNOWLEDGEABLE ACTION TO RESTORE OUR ENVIRONMENT)

DIRECTOR: Mr. Matthew M. Hickey, Colony Office Building,
Route 73 and Butler Pike, Blue Bell, Pennsylvania 19422.
(215)643-7600 Ext. 60

1973 DIRECTORY REFERENCE: pp. 513-515.

No update report received.

ERIC DOCUMENTS:
1. A Curriculum Activities Guide to Solid Waste and Environmental Studies. ED 080 348
2. A Curriculum Activities Guide to Population and Environmental Studies. ED 080 349
3. A Curriculum Activities Guide to Water Quality Equipment and Environmental Studies. ED 080 361
4. A Curriculum Activities Guide to In-Depth Environmental Studies. ED 083 004
5. Project KARE. Annual Report 1972-73. ED 087 692
6. Sketches of Local Action Programs for School Environmental Education. Update. ED 097 199
7. Sketches of Local Action Programs for School Environmental Education. 12/73 to 6/74. SE 018 601

PROGRAM TITLE: TITLE III ESEA PROJECT LIFE - LIVING INSTRUCTION FOR ECOLOGY

DIRECTOR: Alberta R. Covert, Program Specialist, Intermediate Unit 1, Fayette-Greene-Washington, 1148 Wood Street, California, Pennsylvania 15419. (412)938-3241 Ext. 33

1973 DIRECTORY REFERENCE: pp. 539-40

During its third year of operation, Project LIFE continued to emphasize the importance of interdisciplinary activities relative to total environment. Integrated days were planned and purposely structured to demonstrate to teachers the ease and the "common sense" of the interdisciplinary approach to learning.

Activities during the 1973-74 school year included: overnight camping experiences; live-ins at Old Economy for teacher and student groups during which they performed the daily living tasks, using antique methods and implements as they would have done during the 1840's; designated April as "Earthmonth" with a sub-title, "dandelion month", when the whole elementary school system did interdisciplinary activities focused on the dandelion; a two-week summer workshop for teachers entitled, Astronauts, Aquanauts, and Terra-nuts; and a one week modified version of this program for upper grade (6,7,8) students.

-Alberta Covert

PROGRAM TITLE: TAYAMENTASACHTA - A CENTER FOR ENVIRONMENTAL STUDIES

DIRECTOR: Fred C. Kaley, 370 South Ridge Avenue, Greencastle, Pennsylvania 17225. (717)597-2181 Ext. 31

1973 DIRECTORY REFERENCE: pp. 516-18.

No update information received.

ERIC DOCUMENT:
Tayamentasachta: A Center for Environmental Studies. ED 086 505

PROGRAM TITLE: OUTDOOR AND ENVIRONMENTAL EDUCATION CENTER

DIRECTOR: Charles A. Rosini, Harrisburg City Schools, 6200 Parkway East, Linglestown, Pennsylvania 17112. (717)545-3293

1973 DIRECTORY REFERENCE: pp. 519-20.

No changes in project at this date.

-C. A. Rosini

ERIC DOCUMENTS:
1. Sixth Grade: Fall and Winter Curriculum Guide. ED 068 310
2. Fourth Grade: Late Fall and Early Spring Curriculum Guide. ED 068 368
3. Fifth Grade: Winter and Spring Curriculum Guide. ED 068 368

PROGRAM TITLE: ENVIRONMENTAL EDUCATION - A RELEVANT CURRICULUM

DIRECTOR: Dr. William S. Woehr, Pennridge School District, 601 North Seventh Street, Perkasie, Pennsylvania 18944. (215)257-5011 ext. 60

1973 DIRECTORY REFERENCE: pp. 522-3.

1. Special facilities or activities available for visitor viewing:
   a. A large park area developed specifically for use by schools for environmental education.
   b. Several school sites developed for local use for environmental studies.
2. A large area of a county-owned park has been developed for use by school groups for environmental education.
3. Several elementary school staffs have developed environmental education study areas on their school sites.
4. Curriculum guides have been developed for elementary science and social science to incorporate environmental education into the curriculum.
5. Several ongoing teacher training workshops have been established.
6. Walkbooks for the county park area and each school have been prepared and printed.
7. Curriculum guides and walkbooks free on a limited basis.

-W. S. Woehr

MATERIALS: Perkasie Nature Trail Walkbooks.
A Study of the Factors and Procedures Used for School Site Selection, Site Development, and Site Utilfzation

PROGRAM TITLE: GEE! GROUP FOR ENVIRONMENTAL EDUCATION

DIRECTOR: Alan Levy, 1214 Arch Street, Philadelphia, Pennsylvania 19107. (215)564-4403

1973 DIRECTORY REFERENCE: pp. 524-526.

During the past year, GEE has published Alan Levy's new book, The Process of Choice, which is available through the MIT Press. This is a group of four workbooks and an introduction booklet through which the problem-solving process is explored. What You Want, Your Resources, What You Are Allowed to Do and How You Make Choices are the individual titles which, using activities, readings and problems, identify the components of the decision-making process. The workbooks can be used by the teacher as a springboard by which problems particularly pertinent to the class might be analyzed and decisions made about possible solutions.

Something More You Can Learn from Your Schoolhouse is a study that illustrates the many ways for making a school facility a laboratory for learning, both about the school itself and about other parts of the man-made environment. Each school is a microcosm of the important systems which underlie, support and organize the complex community surrounding it. By juxtaposing the two both are made clearer and more understandable. We are looking forward to its publication in 1975.

A second edition of Making the City Observable is being readied for publication. As a "catalog" of projects and publications which provide urban information, it seeks to present various examples by which the city is made accessible to the learning process, as well as point to the innovative and appropriate modes of information which have as their inspiration the urban experience.

-A. Levy

ERIC DOCUMENT:
The Process of Choice. SE 018 319

PROGRAM TITLE: A PROGRAM TO DEVELOP A COURSE ON ENERGY AND SOCIETY FOR SECONDARY SCHOOL TEACHERS AND FOR COMMUNITY LEADERS

DIRECTOR: John H. Anderson, Department of Physics, University of Pittsburgh, Pittsburgh, Pennsylvania 15260. (412)624-4320

1973 DIRECTORY REFERENCE: pp. 527-8.

A preliminary version of a combined text and study guide has been prepared for a course called "Energy - A Technological, Economic, or Moral Crisis?". Study aids and answers to all questions are included. This text-study guide is not ready for general distribution. A limited munber of copies are available for educators who may wish to see it.

Currently courses are being given at two different locations through the University of Pittsburgh's External Studies Program. Plans are under way to offer the course at other sites. Although we have found it useful to have group meetings of those enrolled in the course (for panel discussions, discussions of projects, simulations of environmental impact hearings, etc.), the course is designed for self-study and can be taken without an instructor.

The text-study guide is now being modified in the light of our experience. Our main goal in modifying it is to shorten it and to improve the organization of the units. Minilabs (experiments which can be performed in the home, will be added where appropriate.

Our aim eventually is to provide a course which can be periodically updated by the instructor and/or by us, in order to keep abreast of developments.

-J. H. Anderson

PROGRAM TITLE: LUZERNE-LACKAWANNA ENVIRONMENTAL EDUCATION NETWORK

DIRECTOR: Barbara R. Swaczy, 700 Vine Street, Scranton,
Pennsylvania 18510. (717)961-2033

1973 DIRECTORY REFERENCE: pp. 533-5.

Furthering its basic project objectives in 1974-75, the Luzerne-Lackawanna Environmental Education Network will undertake the following major programs:

1. Continuation of educational activities (workshops, etc.) for Network core teachers. Also quarterly Newletter issued to teachers.
2. Field test project using Computer-Based Resource Units in Environmental Education (K-12), as developed by New Jersey Council for Environmental Education, with 100 elementary and secondary teachers in Network.
3. Development and implementation of LICHEN SENSOR, an inventory of air quality by 3500 students using presence/absence of certain lichen species as an indicator of air quality, in the Wyoming-Lackawanna Air Basin.
4. Continuation and expansion of monthly water quality network in cooperation with Pennsylvania Department of Environmental Resources. In addition to basic chemical/physical data, students will undertake aquatic insect studies and additional "tests of the season" at their permanent sampling sites.

5. Production of 30 five-minute video tape modules on local environmental resources(people, places, activities) in cooperation with local public television station.
6. Development of a community leaders' guide to integrating school/community environmental education into a locality; based upon 3-year Network program experience in northeastern Pennsylvania.
7. Co-sponsorship of Environmental Module Series for teachers at University of Scranton; 3 one-credit modules individualizing instruction on the following topics: Energy and the Environmental Consumer; Environment, Culture and Language Arts; Biological Indicators of Environmental Quality.
8. Continuation of present consultation and clearinghouse activities.
9. Spring 1975 resident environmental education workshop, planned and staffed by network teachers and students.

-B. R. Swaczy

PROGRAM TITLE: STATE COLLEGE AREA SCHOOL DISTRICT ENVIRONMENTAL EDUCATION PROGRAM

DIRECTOR: Dr. Robert Campbell, State College Area School District, 131 W. Nittany Avenue, State College, Pennsylvania 16801. (814)237-6201

1973 DIRECTORY REFERENCE: pp. 536-538.

No update report received.

ERIC DOCUMENTS:
1. Environmental Education, State College Area School District. ED 081 599
2. Environmental Education, Intermediate Division, Boalsburg School. ED 086 498

PROGRAM TITLE: PROJECT EARTH

DIRECTOR: Robert T. Picchione, 845 Park Avenue, Cranston, Rhode Island 02905. (401)785-0400

1973 DIRECTORY REFERENCE: pp. 541-2.

ERIC DOCUMENTS:
1. Secondary Schools Curriculum Guide, Science, Grades 7-9. SE 018 651
2. Secondary Schools Curriculum Guide, Science, Grades 10-12. SE 018 652

PROGRAM TITLE: MARINE ENVIRONMENTAL STUDIES

DIRECTOR: David M. Whitaker, Coordinator, Toll Gate High School,
575 Centerville Road, Warwick, Rhode Island 02886.
(401)738-9770

1973 DIRECTORY REFERENCE: pp. 545-6.

The value of studying marine science has been increasingly emphasized by educators in recent years. In the near future the oceans will be regarded as a valuable source of food, water and chemical substances. Manipulation of this natural resource must be carried out wisely to avoid plundering and misuse. In order to protect our heritage, public awareness must be fostered through education. Marine Environmental Studies, a Title III ESEA program was developed to help meet this need.

Marine Environmental Studies is a regional program for high school students conducted by the school departments of Cranston and Warwick, two Rhode Island communities bordering on Marragansett Bay.

In addition to providing an awareness for the student in the value of our oceans, a major goal of the project is to stimulate a general interest in the study of the sciences. In order to accomplish this goal, students are involved in a "hands-on" exploratory experience rather than the traditional textbook approach. The physical boundaries of the classroom have been extended to include resources of the community and state.

The program involved 150 high school students, seventy-five from each of the two communities. Toll Gate High in Warwick and Cranston East High School in Cranston serve as the on-shore laboratory sites.

Each city has a 19-foot Boston Whaler boat and a boat trailer available to its students. In addition, a twelve passenger bus in each community provides students with easy access to nearby shore and inland sites. Comparative studies of various areas are thus readily achieved.

Student safety is a prime concern. During the summer, students who were unable to swim completed a water safety course. Instructors and students alike are required to wear life jackets while on the water. In addition, both boats are equipped with ship-to-shore radios.

The course of study, which was specially designed for the program is laboratory and field oriented. Accordingly, students investigate a variety of marine locations by boat or bus during a three-hour block of time each week. If weather conditions prohibit on-site activity, experiments are conducted at the onshore laboratory site. Topics of investigation include water chemistry, marine life, salt marshes, tide and current studies, navigation, and political and social factors.

Since use of the boat is restricted during the winter months, shore activities as well as field trips are scheduled. On one such trip students attended sessions of the Rhode Island General Assembly during discussion by the legislators of pending environmental legislation. Other trips have included visits to the Pell Oceanographic Library at the University of Rhode Island, the experimental aquarium at the University's school of oceanography, the laboratories of the Rhode Island Department of Natural Resources, as well as various sea food processing plants.

Students carry out independent research on topics of their own choosing, which range from "An Amateur's Photographic Guide to Tide Pools" to "The Learning Ability of the Green Crab in a Maze". A reference library of over fifty books has been purchased by the project. A wide variety of oceanographic equipment, such as a depth sounder, grab sampler, navigation equipment and the like aid the student in his research.

A great deal of interest in the project has come from other communities in Rhode Island as well as some communities outside the State. This points up an increasing awareness on the part of educators of the need to protect our valuable ocean and shore environments before it is too late. The Marine Environmental Studies Project is a positive step in that direction.

-D. Whitaker

PROGRAM TITLE: CONSERVATION CURRICULUM IMPROVEMENT PROJECT

DIRECTOR: Albert H. H. Dorsey, 810 Rutledge Bldg., 1429
Sonata Street, Columbia, South Carolina 29201.
(803)758-2652

1973 DIRECTORY REFERENCE: pp. 549-50.

Our material is now published by Ferguson Company.

-A. H. H. Dorsey

ERIC DOCUMENT:
A Survey Study of the Comparative Status of Understanding and Reasoning in Conservation Concepts by Ninth Grade Students in the Public Schools of South Carolina. ED 076 320

PROGRAM TITLE: ENVIRONMENTAL SCIENCE

DIRECTOR: Brice M. Latham, Consultant in Environmental Science, The School District of Greenville County, P.O. Box 2848, 301 Camperdown Way, Greenville, South Carolina 29602. (803)242-6450 ext. 360.

1973 DIRECTORY REFERENCE: pp. 553-4.

Address correction only; no other information received.

PROGRAM TITLE: INTERLAKES ENVIRONMENTAL AND OUTDOOR EDUCATION PROGRAM

DIRECTOR: Major L. Boddicker, Chester Area Schools No. 34, Chester, South Dakota 57016. (605)489-2416

1973 DIRECTORY REFERENCE: pp. 555-7.

This program terminated as of September 1, 1973 and Dr. Boddicker and his staff have moved on to other positions. The school district has not disseminated materials concerning the program since that time.

Arnold A. Wold, Superintendent

ERIC DOCUMENTS:
1. Administrator's Environmental Education Evaluation in Manual. ED 067 231
2. Nature's Art. ED 086 499
3. Nature's Bulletin Board Ideas. ED 086 500

PROGRAM TITLE: THE CENTER FOR TEACHERS

DIRECTOR: Dr. John Czirr, McReynolds Hall, Austin Peay State University, Clarksville, Tennessee 37040. (615)648-7187

1973 DIRECTORY REFERENCE: PP. 558-9.

The Center for Teachers' Environmental Sciences Program has been established as the standard curriculum for the preparation of biology and life science teachers at Austin Peay State University. Many graduates of our program now have teaching positions in our regional schools. Principals are generally very excited about the unique, broad-range, and in-depth qualifications of our graduates.

Preliminary evaluations indicate that our summer program, which provides for interaction between our pre-service teachers and high school students, has had a profound effect on performance during student teaching and in the early years of professional teaching.

We have experienced a steady growth in the number of students enrolling in the Environmental Sciences Program, some of whom entered as a direct result of their involvement in summer programs as high school students.

An important facet of the Environmental Sciences Program is that most students can readily become dually certified in a second science discipline, which has a significant bearing on the ability of our graduates to obtain jobs.

In-depth evaluation of the total program is in process and will be completed by June 30, 1975.

-J. Czirr

PROGRAM TITLE: MOBILE ENVIRONMENTAL EDUCATION LABORATORY PROJECT

DIRECTOR: Jack Rhoton, Coordinator, Environmental Education, Kingsport City Schools, 1701 E. Center Street, Kingsport, Tennessee 37664. (615)245-3155

1973 DIRECTORY REFERENCE: pp. 560-62.

The mobile laboratory, included equipment, and curriculum materials developed in connection with the Mobile Environmental Education Laboratory Project in the summer of 1972, continues to play an integral part in the total environmental education program in the Kingsport City School System.

In addition to the use of the mobile unit in the regular environmental education program, the mobile unit is being utilized in the following ways:
1. use of the mobile unit in day-use of community resource facilities
2. development and utilization of environmental study areas on school sites
3. air pollution monitoring
4. used in week-long residence programs in environmental education for elementary students
5. microwatershed studies in cooperation with high school biology students

New curriculum enrichment materials for utilizing the mobile unit are currently being developed for secondary level students

(7-12) in energy. In addition to developing energy materials, future plans call for developing units on soil and water this year. Next year plans call for the same thing in air, population, land use and solid waste management for the secondary level student. All of these new curriculum materials will be problem-focused, interdisciplinary and value oriented.

Each energy unit will list concepts to be developed along with suggested activities. Included in the guide will be listed places for possible field trips, a list of books, visual aids, graphs and a possible glossary of energy related terms. These materials should be finished sometime in November. The Tennesee Valley Authority has provided guidance and technical assistance throughout the development of these materials.

-Jack Rhoton

ERIC DOCUMENTS:
1. Mobile Environmental Education Laboratory. ED 073 922
2. Investigations for a Mobile Environmental Education Library. ED 073 923
3. Mobile Environmental Education Laboratory Project. Final Report. ED 086 494

PROGRAM TITLE: ENVIRONMENTAL-OUTDOOR EDUCATION DEPARTMENT

DIRECTOR: Elizabeth Roller, Coordinator of Environmental Education, Metropolitan Board of Education, Howard School, Nashville, Tennessee 37210. (615)255-8422

1973 DIRECTORY REFERENCE: pp. 565-7.

Address correction only information received, as above.

ERIC DOCUMENTS:
1. Using the School and Community. An Environmental Study Area. Teacher's Handbook. ED 071 917
2. Outdoor and Environmental Education Manual, Grades K-6. ED 081 607
3. Baggage Tags for Learning Out of Doors. ED 089 899
4. Environmental Education. Teacher's Handbook, Grade 5. ED 094 912

PROGRAM TITLE: TEXAS WATER QUALITY BOARD TEACHERS WORKSHOP PROGRAM

DIRECTOR: Bobby D. Whitefield, Chief, Environmental Education and Training, Texas Water Quality Board, P.O. Box 13246, Capitol Station, Austin, Texas 78711. (512)475-4686

1973 DIRECTORY REFERENCE: pp. 568-9.

DOCUMENTS: Clean Water
A Ready-Reference on Major Texas Water Pollution Control Legislation

During the first two years (September 1972 to August 1974) of the Teachers Workshop Program, 27 one-day workshops were held, providing nearly 700 Texas natural science and social studies teachers with water quality information for utilization in the secondary school curriculum. Fifteen to twenty workshops, training an additional 500 secondary school teachers, are projected for the current State Fiscal Year 1975.

Workshop evaluation forms completed by participating teachers indicate the following:

1. Two-thirds are science teachers, and one-third teach social studies or other subjects.
2. Although only one-third consider their knowledge of water quality matters to be good, one-half make attempts to relate water quality problems to their teaching, and almost all teachers give attention to general environmental problems.
3. Ninety-seven percent of the teachers believe that the workshop program provides substantial help in developing learning experiences on water quality, and the training program equals or exceeds the exceptations of 99 percent of participants.

The revised workshop agenda for 1975 focuses on five major topic areas:

1. Role of Federal, State, and Local Governments in Water Pollution Control
2. Water Quality Parameters
3. Wastewater Treatment Methods
4. Biological Responses to Water Pollution
5. Social and Economic Factors Affecting Water Pollution Control

A packet of specially designed, printed hand-out materials related to the major topics is provided to each participating teacher.

As in the past, an introductory water awareness test, lecture, discussion, 35 mm slides, 16 mm sound films, other visual aids, demonstrations, and, where appropriate, practical field experience are utilized by the two workshop instructors in presenting the program.

-B. D. Whitefield

ERIC DOCUMENT:
Texas Water Quality Board Teachers Workshop Program. SE 018 299

PROGRAM TITLE: ENVIRONMENTAL AWARENESS: THE COMMUNITY/ THE LIBRARY

DIRECTOR: Margaret Warren, Dallas Public Library, 1954 Commerce, Dallas, Texas 75201. (214)748-9071

1973 DIRECTORY REFERENCE: pp. 577-8.

Current activity includes quarterly publication of RECYCLING UPDATE, an 8½ by 11 information sheet which brings together community resources--centers, collection locations, newspaper pickup schedules, experts to consult, programs available on the subject, and some printed materials--concerned with collecting recyclable paper, glass, metal and kitchen wastes.

-M. Warren

ERIC DOCUMENT:
Dallas Public Library Environmental Education Project. Final Report. ED 094 785

PROGRAM TITLE: THE ENVIRONMENTAL STUDIES PROGRAM

DIRECTOR: Mrs. Doris Jadan, Mrs. Rosemary Geliber, P.O. Box 84, Cruz Bay, Virgin Islands 00830. (809)776-6278

1973 DIRECTORY REFERENCE: pp. 604-6.

ERIC DOCUMENTS:
The Environmental Studies Program of the Virgin Islands Department of Education. ED 082 977

PROGRAM TITLE: PROJECT HELP: HISTORY, ENVIRONMENT, LAND, PEOPLE

DIRECTOR: Patricia Trollinger, Washington County Environmental Council, Box 95, Emory, Virginia 24327. (703)944-3121 Ext. 271

1973 DIRECTORY REFERENCE: pp. 607-8.

The Washington County Environmental Council, a non-profit citizens' organization, was given a mini-grant by the U.S.

Office of Environmental Education for the purpose of sponsoring a community seminar designed to educate local people to environmental issues in the immediate area. The seminar included lectures, panel discussions, hikes, and related competition in photography and poster-drawing. One unique feature was the attempt to hold programs at various locations throughout the area, encouraging citizens to view the "hinterlands" of the county. Also, the hikes served the same purpose.

As for the future, the WCEC will continue its efforts to educate and stimulate local people to be concerned about environmental quality, recognizing the complexities of issues and the need for complex (political) solutions.

-P. Trollinger

PROGRAM TITLE: MATH AND SCIENCE OUTDOORS

DIRECTOR: R. Wesley Batten, Mathematics and Science Center, 2200 Mountain Road, Glen Allen, Virginia 23060. (804)262-8643

1973 DIRECTORY REFERENCE: pp. 609-10

The Mathematics and Science Center, operating as a consortium of the schools in Chesterfield County, Goochland County, Henrico County, Powhatan County, and the City of Richmond, has an ongoing environmental education program. An outdoor classroom facility complete with marked hard surface and natural trails, planting plots, animal shelters, meteorological stations, firefighting tools, and aquatic planter boxes is maintained for a third grade lesson and for Saturday classes in grades three through ten. Third graders are oriented before their visit with a sound-slide story in their home class. Additional encounters with teachers are facilitated by in-service courses for credit and non-credit. These services as well as others are designed to articulate with the recently published State Department of Education Environmental Education Guide, K-12.

-R. W. Batten

PROGRAM TITLE: PROGRAM FOR THE GIFTED

DIRECTOR: Nedra I. Harkavy, Hampton City Schools, 1306 Thomas Street, Hampton, Virginia 23369. (703)722-5958

1973 DIRECTORY REFERENCE: pp. 611-3.

The Environmental Science Program of the Program for the Gifted has been a very successful one in many ways. The objectives have been met in the cognitive, affective, and psychomotor domains.

Students have developed new ways to use their leisure time. Several of the students have used some phase of the program to develop useful hobbies which occupy much of their unscheduled time. All of the students are working on various projects within their special interest.

The students meet regularly to perform experiments connected with their research work. The performing of these experiments give students much opportunity to increase their skills in the biological and physical sciences. Using an "open ended inquiry approach," the students have practice in the use of a scientific method for solving problems in connection with their research. They also receive much training and practice in the use of various sophisticated scientific apparatus which they would not ordinarily get to use except on a college level.

The program has given the students much leadership potential by allowing the students to work together as a team on projects. This has been done both for short range and long range goals by acting as student demonstrators within the framework of their own research as well as serving as consultants for younger students who are potential scientists.

Working within the framework of all the above, the students have become acquainted with the many varied and rich resources of the Tidewater Peninsula Area. They have consulted with various people in many professions about their research projects. They have visited and used many of the outdoor resources on the Peninsula in connection with their projects.

-Nedra I. Harkavy

PROGRAM TITLE: EDMONDS K-12 ENVIRONMENTAL EDUCATION PROJECT

DIRECTOR: William J. Hamilton, 3800 196th S.W., Lynwood, Washington 98036. (206)778-8831

1973 DIRECTORY REFERENCE: pp. 614-5.

In January of 1973, the Edmonds School District embarked upon the task of designing, writing and implementing a working model for a multidisciplinary process curriculum in Environmental Education. This model includes six phases organized into the following plan:

1. To plan for the structure of appropriate training and student activities as designed by two writing teams to be selected on the basis of defined qualifications. The participating teams will represent each grade level, K-6, and each relevant secondary discipline 7-12. The team will consult with community, local, state, and natural resource personnel and will incorporate and expand existing materials into a total program that reflects the objectives established.

2. A plan for implementing the materials written by means of training sessions at the elementary building level and for the specific secondary disciplines and secondary teachers involved. The writing team will form a nucleus for the training of teachers in use of materials and equipment.

3. A plan to evaluate the effectiveness of materials and methods used through formal and informal feedback from students and teachers involved. Students will be evaluated on the cognitive aspects of the curriculum materials written and both teachers and students on the attitudinal aspects.

4. A plan for revision and retraining as necessitated by the analysis of evaluation procedures and results, and from community feedback.

5. A plan for dissemination of developed materials through the Office of The Washington State Superintendent of Public Instruction as required by the project description.

6. A plan to continue the program utilizing district and community funds under the guidance of the Edmonds District 15 Environmental Council in cooperation with the District Environmental Consultant.

At this time, (summer of 1974) we have completed phase two and are now working on implementing phase three.

-W. J. Hamilton

ERIC DOCUMENTS:

1. A Multidisciplinary Process Curriculum in Environmental Education:
    a. Grade 1. SE 018 289
    b. Grade 2. SE 018 290
    c. Grade 3. SE 018 291
    d. Grade 4. SE 018 292
    e. Grade 5. SE 018 293
    f. Grade 6. SE 018 294
2. (Air Pollution Unit, Edmonds School District). SE 018 447
3. (Land Use Unit, Edmonds School District). SE 018 448
4. (Resources Unit, Edmonds School District). SE 018 449
5. (Water Quality Unit, Edmonds School District). SE 018 450

PROGRAM TITLE: ESSENTIA

DIRECTOR: Robert E. Samples, The Evergreen State College, Olympia, Washington 98505. (206)866-6570

1973 DIRECTORY REFERENCE: pp. 620-1.

The Essentia project (formerly Environmental Studies for Urban Youth) is continuing in its efforts to improve the quality of elementary and secondary science and social science education. Thrust of the project has now changed, with the award of its present grants from the National Science Foundation, to implementation of the project's materials and strategies as opposed to its previous emphasis on materials development. Additional applications for funding are pending, including requests for 1) continued implementation of previously developed materials; and 2) support for development of additional and new materials to enhance creativity and effective learning in public school environments.

For information concerning possible assistance in using ES materials and strategies, and for additional information about the project's work, please write: ESSENTIA, The Evergreen State College, Olympia, Washington 98505.

-R. Samples

PROGRAM TITLE: THE CISPUS CASE STUDY PROJECT

CO-DIRECTORS: Dr. Kenneth A. Hammond, Environmental Studies Program, Central Washington State College, Ellensburg, Washington 98926 (509)963-3681; Dr. R. Thomas Tanner, Cispus Environmental Center, Randle, Washington 98366 (206)497-7131

1973 DIRECTORY REFERENCE: pp. 622-23.

Summary:
A project to develop new instructional materials is centered at the Cispus Environmental Learning Center during the 1974-75 school year. These will be case studies of specific environmental issues, and will include selected readings, activities, discussion questions, and teacher's guides. They will be prepared for the high school level, and will be especially useful for social studies and environmental courses.

Rationale:
Citizen action is necessary to the solution of our nation's environmental problems, local and national, immediate and long-range. Citizen action led to the formation of our national park system, the Environmental Protection Agency, the concept

of the environmental impact statement, and other environmental safeguards. Citizen action halted the Miami jetport, certain dams on the Colorado, and similar questionable projects. Citizen groups have facilitated industry or public agencies in such positive steps as Union Camp Corporation's gift to the nation of a 50,000 acre wildlife preserve in the Great Dismal Swamp. In a very real sense, the essence of American participatory democracy is illustrated by local and ad hoc citizen conservation groups, as well as by such national and/or old line organizations as the Nature Conservancy, The National Audubon Society, The Wilderness Society, and others.

Unfortunately, there is much in our culture which conveys the impression that one is doing his duty as a citizen if he merely votes; this myth is strongly implicit in the mass media around election time, for instrance. Teachers and the schools are not all prepared to overcome this failure in cultural transmission.

The concept of participatory democracy is nowhere better exemplified than by the work of citizen conservation groups. High school students should have the opportunity to learn about such groups in some detail, both as to their raison d'etre and modus operandi. An obvious vehicle is the case study approach to specific environmental issues. This can be a superior form of environmental education as well as a superior form of citizenship education.

To date, the mass of instructional and supplementary materials available to teachers might be regarded as "First Generation" materials -- endless film footage of belly-up fish and belching smokestacks, and exhortations to do some ill-defined "something" on behalf of the environment. Second Generation materials are not yet widely available -- those which look closely at specific issues, and which illustrate graphically the specific actions which citizens can and do take to safeguard the environment.

Many educators experienced in curriculum innovation and dissemination agree that teachers need to develop their own instructional materials suited to their own teaching style and background. Yet teachers do not have the time or opportunity to compile the information needed to develop an instructional unit around a case study. This combination of circumstances suggests the wisdom of an approach in which the background information and certain resource materials are first assembled for teachers, who then create their own units from these.

Perhaps the most conspicuous shortcoming in many of the instructional materials prepared for environmental education in recent years is the failure to provide the teacher with adequate background information and materials needed to use the instructional unit successfully.

Potential Cases:
Some of the case studies had been partially developed by project personnel prior to the 1974-75 school year; these are now being subjected to further revision, updating, and trail. They include:

Glen Canyon Dam and Lake Powell, on the Colorado River -- a controversy regarding the inundation of a unique natural area. Utilized three excellent free-loan films, among other materials.

The Case of the Bighorn Sheep -- concerns alleged overgrazing of public lands, and a crusading wildlife researcher in Idaho. Utilized photography and narration by the researcher.

Energy Alternatives for the Future -- documents have been identified which present the case for various alternatives which compete for research and development funds: nuclear fission, nuclear fusion, solor, geothermal, wind. Emphasis is placed upon the pros and cons of the first of these, since it is currently receiving priority funding and, partly due to this, it is the most controversial. A simulation based upon these documents has received limited but very successful trial.

Additional cases may deal with:

Stream channelization -- the highly controversial practice of flood control through the "straightening out" of rivers.

Stripmining (for coal, in difference to subsurface mining). Another currently controversial practice.

The impact of additional irrigation of arid lands on the Yakima Indian Reservation.

The trend from small family farm to large corporate farm, and associated ecological and social implications.

Other appropriate topics.

Traits of the Case Studies:
Each will consist of a packet of periodical articles, transcripts of hearings, or other printed materials bearing on the issue. Bibliographies of other relevant materials will be included, with full availability information, price, name and address of vendor or lender, and critical annotation. In most cases, discussion questions and possible teaching strategies will also be included.

To the degree practicable, the materials will not only elucidate the case per se, but also the appropriate historical, political, ecological, and geographical contexts within which it is properly subsumed.

The role of citizen action will be made clear in each case study. Since the project's primary and ultimate objective is to promote a more sophisticated knowledge of participatory democracy, the case studies as a group will illustrate various modes of responsible citizen action, such as litigation, land acquisition, public information programs, testimony before agencies or elected representatives.

There will also be an attempt to illustrate citizen action representing various levels of sophistication and efficacy.

Learning Objectives:
The learner can detect non-responsive or non-sequitur arguments in opposing literature regarding a proposed development.

The learner can explain the difference in operation between two rather different citizen conservation groups, such as The Nature Conservancy and The Wilderness Society.

The learner can describe the various constituencies to which a specific government resource agency must be responsive. He can describe instances of conflicting expectations by these constituencies.

The learner can describe example cases in which one of the following citizen actions may be more or less effective than others: writing to a Congressman, donating money to a groups, devoting time to a groups' public education and publicity campaign, organizing a new or ad hoc group..

The learner can place a case into appropriate larger contexts; he can elucidate ecological, economic, political, historical, or other principles or generalizations which apply.

Given a hypothetical case, the learner can identify an appropriate course of citizen action.

The learner can describe the decision-making process, and identify those who were parties to it, in a specific case.

Publication and Dissemination:
Plans for publication and dissemination are not yet firm.

-R. T. Tanner

ERIC DOCUMENTS:
1. Outdoor Recreation Activities at Cispus. ED 085 163
2. Humanized Teacher Preparation at Cispus, A Compendium of Ideas on Teacher Preparation and Evaluation. ED 089 951

PROGRAM TITLE: HARRISON COUNTY AND ELK CREEK POLLUTION CONTROL COMMITTEE, INC.'S COMMUNITY EDUCATION

DIRECTOR: Sandy DeMark, President, Harrison County and Elk Creek Water Pollution Control Committee, Inc., P.O. Box 30, Nutter Fort, West Virginia 26301.

1973 DIRECTORY REFERENCE: pp. 630-1.

We are continuing our monthly meetings, and while we have exhausted our educational grant, we still continue to have educational meetings with special programs at our regular meetings.

As previously reported, the HEW educational grant led to an acid mine drainage research grant using Federal and State matching funds. We are working with the West Virginia Department of Natural Resources, the fund-administering agency, and have engaged engineers who are currently working on the acid mine drainage sites on the Elk Creek watershed to find ways of eliminating or abating acid mine drainage water in our streams. There are about five sites mapped, surveyed and planned for the research. Weirs have been built to monitor sediment, and with the cooperation of the County Court and the City of Clarksburg a flood warning monitor system has been installed on Elk Creek. Mineral contents are also monitored.

One very bad site being investigated in our research is near Berryburg. The situation is complex. This area is part of the area selected for research using the Federal-State funds. The aim of Elk Creek and Water Pollution Control Committee is to accomplish our goal of clean streams and pure water. Also, most of our members are working with other groups..such as the Elk Creek Watershed Project for small dams under P. L. 566, the DNR/County Court Clean Streams programs which carries away trash from rivers and streams, and the Wes-Mon-Ty RC&D project which is seeding secondary roadbanks in cooperation of the Department of Highways..thus preventing erosion of soil into streams. Our members are also members of these other organizations. We are assisting with selecting sites to be revegetated that are mine refuse piles.

-S. DeMark

PUBLICATIONS: Jean E. Oliverio, "The Ressurrection of Elk Creek", Wonderful West Virginia 38:1 (March 1974), 2-3, 27.

PROGRAM TITLE: NATURE EDUCATION DEPARTMENT, OGLEBAY INSTITUTE (BROOKS NATURE CENTER)

DIRECTOR: John S. Christie, Oglebay Institute, Wheeling, West Virginia 26003. (304)242-6855

1973 DIRECTORY REFERENCE: pp. 632-3.

Nothing new to report.

PROGRAM TITLE: ENVIRONMENTAL INFORMATION CLEARING HOUSE

DIRECTOR: Roy Tull, Sigurd Olson Institute of Environmental Studies, Northland College, Ashland, Wisconsin 54806. (715)682-4531

1973 DIRECTORY REFERENCE: pp. 634-5.

The Environmental Information Clearing House has become heavily involved in Land Use and Land Use Planning in the Lake Superior Region. Consequently, an information base has accumulated on Land Use with specific emphasis on Zoning, Mining, Solid Waste Disposal and Recreational Development.

Our Environmental Education/Awareness effort has been maintained and refined. Institutional staff and citizen leaders have become primary targets. EICH has received a grant for a project involving citizen participation in land use planning for FY '75.

EICH has developed materials for dissemination as well and will continue this effort particularly in the audio visual field.

-Robert Hollinshead
Research Assistant, EICH

PROGRAM TITLE: ENVIRONMENTAL EDUCATION - A COMMUNITY-UNIVERSITY APPROACH

DIRECTOR: Tom P. Abeles, College of Environmental Sciences-University of Wisconsin-Green Bay, Green Bay, Wisconsin 54302. (414)465-2371

1973 DIRECTORY REFERENCE: pp. 638-9.

The project has shifted its focus into several directions:

1. Land Management/Planning - students and community members are collecting land use, vegetation and socio-economic data for total land use planning in the Kewaunee Watershed.

2. Energy Conservation - with several new grants (OEE, NSF and a University of Wisconsin institutional grant), the area of alternate sources of energy is being explored. This includes:
   a. The use of anaerobic digesters for pollution abatement and energy production on farms. A model digester is nearing completion.
   b. Solar energy as a low-grade heat source is being explored for homes and in conjunction with the anaerobic digester project.
3. The project is expanding to include the surrounding counties, as well as the watershed, and is adding additional community and high school participants.
4. The project has become part of the regular curriculum at one of the high schools (with credit awarded) and is an established credit-awarding program at the University of Wisconsin-Green Bay.

-T. Abeles

PROGRAM TITLE: I-C-E (Instruction-Curriculum-Environment)

DIRECTOR: Robert J. Warpinski, 1927 Main Street, Green Bay, Wisconsin 54301. (414)468-7464

1973 DIRECTORY REFERENCE: pp. 640-2.

Project I-C-E is in the fifth year of operation serving all schools as a Regional Center in Northeastern Wisconsin's Area "B", consisting of Cooperative Educational Service Agencies 3-8-9. The current program may be categorized as follows:

1. Publication and implementation activities for the completely revised K-12, all major subjects and grade levels, second edition of the Environmental Education Guides, supported by staff services and a Resource Materials Center as funded under ESEA, Title III, The Wisconsin Department of Public Instruction, It emphasizes, also, an evaluation design on student change as a result of the program in selected pilot and control groups.

2. As funded in part by the National Environmental Education Act, supported by Title III, and other local revenues, Project I-C-E and cooperating state agencies staged a National Environmental Education Fair bringing to area teachers the environmental programs and strategies of outstanding nationwide projects for the purpose of stimulating environmental instruction and exploring the Fair concept as a national dissemination strategy. The one-year project incorporates an evaluation design to determine how area teachers were influenced, both at the Fair itself and in their follow-up during the course of the school year.

3. Working with the Wisconsin Environmental Education Council, Project I-C-E is promoting a statewide Environmental Educational Plan that would incorporate the regional center concept through state legislation. This would provide for replication of center services in several parts of the state, somewhat akin to the services provided by Project I-C-E in its region.

4. Under a Pilot Developer/Demonstration grant, Section 306, ESEA Title III, Project I-C-E is to demonstrate program effectiveness in pilot and control groups outside of the traditional project service area. The evaluation design is geared to measuring student change in both the cognitive and affective domains in grades 2,5,8 and 11. The Project's ECI's, (Environmental Concern Inventory and Environmental Cognitive Inventory) revised to correspond to the revised environmental education guides, will be used in a pre-post test situation, with program implementation taking place in the pilot group.

-R. Warpinski

ERIC DOCUMENTS:

1. Kindergarten Environmental Education Guide. SE 018 343
2. Grade One Environmental Education Guide. SE 018 344
3. Grade Two Environmental Education Guide. SE 018 345
4. Grade Three Environmental Education Guide. SE 018 346
5. Grade Four Environmental Education Guide. SE 018 347
6. Grade Five Environmental Education Guide. SE 018 348
7. Grade Six Environmental Education Guide. SE 018 349
8. Agriculture Environmental Education Guide. SE 018 350
9. American History Environmental Education Guide. SE 018 351
10. Art 7-9 Environmental Education Guide. SE 018 352
11. Biology Environmental Education Guide. SE 018 353
12. Earth Science Environmental Education Guide. SE 018 354
13. General Math 9-12 Environmental Education Guide. SE 018 355
14. Language Arts 7-8 Environmental Education Guide. SE 018 356
15. Language Arts 9-12 Environmental Education Guide. SE 018 357
16. Life Science Environmental Education Guide. SE 018 358
17. Mathmatics 7 Environmental Education Guide. SE 018 359
18. Mathmatics 8 Environmental Education Guide. SE 018 360
19. Mathmatics 9-12 Environmental Education Guide. SE 018 361
20. Music 7-9 Environmental Education Guide. SE 018 362
21. Music 10-12 Environmental Education Guide. SE 018 363
22. Social Studies 7-8 Environmental Education Guide. SE 018 364
23. World History Environmental Education Guide. SE 018 365
24. Art K-3, Environmental Education Guide. SE 018 584
25. Art 4-6, Environmental Education Guide. SE 018 585
26. Art 10-12, Environmental Education Guide. SE 018 586
27. Business Education 9-12, Environmental Education Guide. SE 018 587
28. Home Economics 7-12, Environmental Education Guide. SE 018 588
29. Industrial Arts 7-12, Environmental Education Guide. SE 018 589
30. Industrial Arts 9-12, Environmental Education Guide. SE 018 590
31. Music K-3, Environmental Education Guide. SE 018 591
32. Music K-4, Environmental Education Guide. SE 018 592

33. Physical Education K-6, Environmental Education Guide. SE 018 593
34. Physical Education 7-12, Environmental Education Guide. SE 018 594
35. Physical Science, Environmental Education Guide. SE 018 595
36. Physics, Environmental Education Guide. SE 018 596

PROGRAM TITLE: WISCONSIN ENVIRONMENTAL EDUCATION IN-SERVICE PROJECT

DIRECTOR: David C. Engleson, Department of Public Instruction, 126 Langdon Street, Madison, Wisconsin 53702. (608)266-3319

1973 DIRECTORY REFERENCE: pp. 643-5.

The project conducted a small feedback conference during August 1974. A revision of the Wisconsin Environmental Education In-service Project Resource Guide based on this feedback is being prepared and will be distributed to Wisconsin college and university environmental education instructors upon completion. The Resource Guide will also be available for sale from the Wisconsin Department of Public Instruction, 126 Langdon Street, Madison, WI 53702.

In-service courses are being planned in 12-15 Wisconsin school districts for the 1974-75 school year. A summer leadership conference to prepare additional instructors is being planned for 1975. It is hoped that a curriculum development guide will also evolve from the revision of the Resource Guide.

-D. C. Engleson

ERIC DOCUMENT:
Conceptual Approach to Art Curriculum Planning. ED 086 459

PROGRAM TITLE: OUTDOOR EDUCATION PROGRAM

DIRECTOR: Donald Stern, Stephens School, 120 S. Rosa Road, Madison, Wisconsin 53705. (608)238-4285

1973 DIRECTORY REFERENCE: pp. 646-8.

The Madison Public Schools environmental education program was an attempt to coordinate the many fine local efforts and projects designed to improve environmental education, and to effectively organize these efforts for use of community resources. The local community and school system has many resources for environmental efforts. For years educators in the

Madison schools have used school forest areas and outdoor sites with naturalists for instruction of the school population. In 1969, with increased responsibility in environmental education identified, many of the operating components were identified as part of an overall program.

The objectives of the project were to provide facilities, guidelines and resources for effective community programs and to assure participation of students at all levels in meaningful experiences. The systematic use of resources available for the project was guided by those members of the planning group. Federal funds were used to identify and develop local audio-visual materials. This project under the directorship of Mary Lou Peterson, won awards and resulted in an increased in-class backup component for use of outdoor facilities. The development and expansion of the Cherokee Outdoor Education Area with Richard Lee and the city park commissioner's office, resulted in an increased usage of this facility, and an increased effectiveness in the overall program. The school-community effort worked to refine already existing procedures to encourage student involvement, identifying effective teacher in-service methods, and developing a school-community approach to help student participants understand the nature of man-created and natural systems. Advisory committees met, students, teachers, parents, school administrators, university faculty, and other community members worked on the project.

The project is effectively completed with termination of funding in 1974. Continuing work on refinement is necessary and continued maintenance imperative for continuation of well-planned and effective experiences for students at all levels.

Present goals 1974-75 include expansion of outdoor activities and coordination with resources available.

-D. Stern

PROGRAM TITLE: STATE ENVIRONMENTAL EDUCATION PLANNING AND REVIEW

DIRECTOR: David W. Walker, Wisconsin Environmental Education Council, 521 Lowell Hall, 610 Langdon Street, Madison, Wisconsin 53706. (608)263-3327

1973 DIRECTORY REFERENCE: pp. 649-50.

Following a year of public review and special studies, Wisconsin will publish its master plan for environmental education late in 1974. The year was devoted to affording various sectors of interest an opportunity to respond to a draft master plan released during the spring of 1973. Paralleling public release was a continuing effort by the Wisconsin Environmental Education Council's

Citizen Advisory Committee which undertook several special studies of high priority concerns. One focused on improving in-service training for teachers, and another is analyzing how to better inform the general public of rights and responsibilities in protecting and improving environmental quality. Another group is reviewing legislative needs. The finding of such studies are providing a basis for revision of the draft plan and a proposed final plan is before the Council for adoption.

In many respects the planning process and implementation have been merged in Wisconsin. When it became clear that teacher in-service training was a primary need, a concentrated effort began to consider ways for improvement. As a result a demonstration workshop based on the U.S. Forest Service process approach was conducted which not only provided a new experience but an opportunity to assess that approach. Another demonstration activity was provided on values clarification.

In the future, Wisconsin's efforts will be directed toward working with each sector of interest to consider ways of participating in plan implementation. For example, consideration will be directed toward ways for expanding local assistance and availability of information and materials.

Another effort will seek legislative recognition of and support for environmental education. Modest grant assistance in previous years has demonstrated the values of seed money and experimentation.

Initial efforts have already begun for interstate cooperation when common needs occur. A pilot video in-service program was developed with the State of Minnesota and the U.S. Bureau of Sport Fisheries and Wildlife. Other ventures are being discussed. The prospects are especially encouraging.

During the coming months then, Wisconsin should not only complete its initial planning process but increase the momentum generated by broadened attention to environmental education needs.

-D. Walker

ERIC DOCUMENTS:

1. Environmental Education. Securing a Foundation for Environmental Quality. A Process for Improving Environmental Education in Wisconsin. ED 086 504
2. Ethics for Environment: Three Religious Strategies. Proceedings of a National Conference (University of Wisconsin-Green Bay, June 11-13, 1973). ED 093 646

PROGRAM TITLE: M.E.E. A PROJECT FOR MAN, ENVIRONMENT, AND EDUCATION, TITLE III, E.S.E.A.

DIRECTOR: David Schiotz, Menomonie Public Schools, 718 N.
Broadway, Menomonie, Wisconsin 54751. (715)235-9045

1973 DIRECTORY REFERENCE: pp. 651-2.

Materials Produced:
1. K-4 Environmental Modules.
2. 5-8 Modules, plus Teacher's Guides.

Project materials order form available from project on request.

-D. Schiotz

ERIC DOCUMENT:
Environmental Activities, K-12 Environmental Education Program, Summer Workshop 1972. ED 079 068

PROGRAM TITLE: ENVIRONMENTAL EDUCATION, MILWAUKEE PUBLIC SCHOOLS

DIRECTOR: Nancy R. Noeske, Environmental Education Coordinator,
P.O. Drawer 10K, Milwaukee, Wisconsin 53201. (414)475-8093

1973 DIRECTORY REFERENCE: pp. 653-6.

No update report received.

ERIC DOCUMENTS:
1. Cooperative Programming of Learning Experiences Through Outdoor-Environmental Education. ED 074 038
2. Environmental Education Second-Year Evaluation Report, 1972-1973. ED 085 245
3. Master Plan for Environmental Education in the Milwaukee Public Schools, 1973-1974, Continuation Application. ED 085 246
4. Art/Environmental Aesthetics: A Guide for Elementary Teachers. ED 085 247
5. Environmental Education Activities for the English Language Arts Program in the Junior and Senior High Schools. ED 085 248
6. Junior High Mathematics Activities and Problems in Environmental Education: A Teacher's Guide. ED 085 249
7. Addenda to Home Economics Curriculum Guides, Environmental Education. ED 086 506
8. The Elective Program in English. Course Title: Writers and the Environment. ED 086 507
9. Environmental Chemistry Activities. ED 093 599
10. Urban Studies: A Conceptual Framework with Related Materials and Activities for a Study of Man and His Urban Environment. ED 097 259

PROGRAM TITLE: WEEKEND CONFERENCES ON WATERSHEDS (FORMERLY: PROGRAM TO TRAIN TEACHERS AND STUDENTS IN AN INTERDISCIPLINARY APPROACH TO ENVIRONMENTAL EDUCATION)

DIRECTOR: Rev. Melvin Tracy, J.F.K. Prep, St. Nazianz, Wisconsin 54232. (414)773-2111

1973 DIRECTORY REFERENCE: pp. 657-8.

Recent and future activities of J.F.K. Prep students in environmental areas:

1. Science I students:
    a. Nine month survey of a drainage ditch emptying into a local river. Various parameters monitored, stream flows taken. Inconclusive results, but helpful background data for future studies. Results sent to DNR, ASCS, Izaak Walton League.
    b. Continued monitoring of "hot spots" on Manitowoc River. Reports compiled and sent to DNR, Attorney General, local areas affected.
    c. Optional unit developed-survey of abandoned autos in the county. About ½ of the county was covered. Results sent to County Planner, DNR, Attorney General. Some results: local salvage yard owners viewed the report and since then many autos reclaimed. Also noted were locations of gravel pits, clear-cutting, rustic roads and salvage yards. DNR representative noted that some salvage yards did not have licenses.

In all of the above, the process used was one of problem solving. The students first take a physical survy to determine if a problem exists, then gather and interpret data, and seek a solution, if such is possible.

2. Environmental Science Students:
    a. In a unit on Environmental Law, students developed an EIS (environmental impact statement) on an imaginary project of the school - building a parking lot. A "public hearing" was held at which the contrast between the emotionalism of non-course students attending and students conducting the hearing (with a very rational approach) was great.
    b. In January, students participated in a course given at the University of Wisconsin-Green Bay, on Alternate Sources of Energy. During the course ideas germinating for over a year jelled and a proposal for work on energy sources resulted. This has been funded by the Office of Education and the N.S.F. (the latter in conjunction with UWGB).
    c. Future projects include possible construction of a methane digestor and work in the areas of plants, especially wild plants, as a source of food, and their nutritional value.

-M. Tracy

PROGRAM TITLE: ECOLOGY AND HUMAN VALUES

DIRECTOR: George Conom, Sun Prairie Public Schools, 220 Kroncke Drive, Sun Prairie, Wisconsin 53590. (608)837-5181

1973 DIRECTORY REFERENCE: pp. 659-60.

The course "Ecology and Human Values" is taught by a team of teachers - a social studies teacher and a biology teacher. The course is one semester in duration and presently 250 students are enrolled. Seniors get first priority to enter the course; if there are additional openings, juniors are allowed in. The course is basically the same as presented to you a few years ago with one exception being that a simulation activity is used in cooperation with Wisconsin Power and Light Company in which students role-play a conflict over the construction of a power plant.

-G. Conom

PROGRAM TITLE: ECO-CURRICULUM DEVELOPMENT AND LEARNING LABORATORY

DIRECTOR: Mr. Robert Larson, Laramie County, School District No. 1, 253 Prairie Avenue, Cheyenne, Wyoming 82001. (307)634-3152

1973 DIRECTORY REFERENCE: pp. 661-2.

In June of 1971 the Eco-Curriculum Development and Learning Laboratory (Eco-Lab) located at Cheyenne was funded through the U.S. Office of Education under Title III, Sec. 306 of the Elementary-Secondary Education Act of 1965. This environmental project was one of sixteen in the United States which was approved by the Education Office at that time.

Funding for the project is approved on a yearly basis for a three year period. Continuation of the full three years is contingent upon Congress allocating the funds and the project meeting its objectives. This project has been funded for its second year.

The curriculum which is being developed through this project is attempting to improve and up-date the general quality of instruction in environmental education in Laramie County School District No. 1 with special emphasis on the handicapped. Since this is a demonstration program, every student in the district will not be exposed to the various facets of the program. Phase I, the first year, dealt primarily with the handicapped and students in kindergarten through sixth grades. This year Phase II will concentrate in the seventh through ninth grades. Phase III will include work in the tenth through twelfth grades.

The Eco-Lab which serves as a resource center is equipped with a library of environmental instructional materials. In the fall of 1971 an in-service course for elementary teachers and principals was conducted at the center. The course included lectures, laboratory demonstrations, two field trips and curriculum development sessions. During the curriculum development sessions, the participants did research work for the purpose of developing environmental activities that could be used in the elementary grades. Current reading materials in environmental education and up-to-date information on environmental curriculum was reviewed. Each participant in the course developed at least two activities, one for a specific grade level and one multilevel. The activities developed during these sessions were evaluated by the participants in the spring of 1972. After the activities were evaluated, they were compiled into two booklets and a field guide.

It is hoped that through the use of these environmental activities, students will be encouraged to appreciate man's role within his environment.

-R. Larson

ERIC DOCUMENTS:

1. Environmental Activities, Junior High School. SE 018 277
2. Environmental Activities, Senior High School. SE 018 278

PROGRAM TITLE: LIFE - 5TH GRADE PROGRAM - LEARNING IN FIELD ENVIRONMENT - GRAND TETON ENVIRONMENTAL EDUCATION CENTER

DIRECTOR: Ted F. Major, Box 68, Kelly, Wyoming 83011.
(307)733-4765

1973 DIRECTORY REFERENCE: pp. 665-6.

Teton Science School, which has been conducting field biology courses in Grand Teton National Park for a number of years, is now under contract with the National Park Service to operate the new Grand Teton Environmental Education Center. The Center was formally dedicated on August 24, 1974 as a year-round environmental center. The school has also been re-located in the Park at the former Elbo-Ramshorn Ranch site. Nestled in a forest of lodgepole pine and aspen, the site was for many years, a dude-ranch. Six winterized log cabins serve as dormitories while the main lodge serves as dining room, library, and study area. Grand Teton National Park serves as an unexcelled classroom and laboratory for outdoor environmental education programs.

In the past, Teton Science School has offered a variety of environmental courses during the summer months for high school, elementary and college level students. This year the Center will offer winter sessions as well. New courses available include nature in literature, winter ecology, cross-country skiing, winter photography and several open sessions for teachers wishing to use our facilities and staff for their own winter courses. A Title III Grant has been given to the school this year to provide for a high school level course entitled "Nature in Literature".

Other courses may develop later in the season and all interested persons are welcome to contact the school for up-dated scheduling.

-T. Major

PART II:

Elementary and Secondary School-Based Projects and Programs

PROGRAM TITLE: HUFFMAN HIGH SCHOOL OUTDOOR LABORATORY

DIRECTOR: Mrs. Eugenia Corina, Huffman High School, 950 Springville Road, Birmingham, Alabama 35215. (205)853-6519

Objective: To provide continuing experiences in study of ecology, resources for classroom activities, appreciation of environment, and beautification of school and community. The enthusiasm and interest in this project has spread from one biology class to include the entire school and community.

Since city children frequently lack wildlife experiences, a school outdoor laboratory is one way the students may have some actual contacts with nature. An "on campus" site is much to be preferred since field trips have become so hazardous with modern day problems that most teachers are reluctant to take students off the campus. Another advantage of the campus laboratory or nature center is the availability, more frequent use, the greater student participation in planning, construction and maintenance. This is an excellent opportunity to blend field activities with classroom experiences.

The Huffman High Outdoor Laboratory is a continuing experience that provides resources for classroom activites. It provides a variety of materials and approaches such as microscopic pond life, small animals, wild flowers, trees and botanical specimens. A good teacher will capitalize on incidental unplanned events - such as the accommodating deer nest with four eggs - one hatched each period so that four different groups were able to witness the event.

We have found that our laboratory has developed enthusiasm, interest, appreciation, awareness, understanding, and respect for the environment on the part of both students and faculty. These experiences give students opportunities to define, consider and work out solutions to practical problems. A spirit of cooperation and team work, skills in observation, and sharing of ideas have been developed during this project. It has provided an opportunity to teach as incidental information the proper use of and maintenance of tools, good safety habits, first aid, good health practices, the interdependence of plants and animals, and nature appreciation. This project has had visible, tangible, immediate, and long range results with good physical activity and a sense of accomplishment. It has stressed good conservation practices: animal, plant, soil, and water. This is an open-ended, never-completed program which can continue from year to year.

The excitement generated during the early development of this project pervaded the entire student body and community. It has promoted community concern for the school grounds and neighborhood and for environmental problems. It has stimulated interest and influenced groups in several directions: beautification, recreation, hobbies. The cooperation and support has come from all departments of the school.

The entire student body enjoyed using the beautiful grass and trees for an annual awards program and class day exercises held outside. The U. S. Forestry Service used the laboratory for an all-day environmental workshop for science teachers.

Activities included:
1. Plantings.
2. Development of a rooting bed for the propogation of plants.
3. Construction of a compost pit for the production of organic fertilizer.
4. Development of a swamp wildlife area on campus.
5. Clearing and construction of an outdoor classroom.
6. Cleaned trail and constructed a footpath and log bridge to allow specimen collection from creek.
7. Designed a sundial and constructed a base and installed sundial on campus.
8. Dug and constructed a fish pond with waterfall and rock garden.
9. Raised Martin houses (1972). Raised Martin gourds (1973).
10. 800 praying mantis egg cases and 45,000 ladybugs distributed throughout area.
11. Development of student area.
12. Fertilization of existing shrubbery.
13. Addition of mulch and sand to soil around shrubbery.
14. Soil testing by chemistry classes.
15. Constructed drainage ditches (concrete and culverts).
16. Carving Milton quotation "Accuse not nature, she has done her part. Do thou but thine," into a log at the entrance of the wildlife area.
17. Identification and labeling of trees on campus.
18. Erosion control using rocks, limbs, grass, mulch, etc.
19. Painting of oil drums for litter cans to control pollution.

Participating groups:
1. Birmingham Board of Education: electrical, concrete, plumbing.
2. PTA: support and variety of assistance.
3. Title 45 Grant (HEW) (ESAP) - $1500.00.
4. Sherman Oaks Garden Club: Gift of $25.00
5. Botanical Garden: Advice and plants.
6. Huffman Civitan Club - $50.00 (1972) and $50.00 (1973) for tools.
7. Department of Agriculture: 1500 pine trees and assorted other plants.
8. Beautification Board: Advice, plants and award.
9. Acton Camera Shop: Discount on films and help in photographic work.
10. Birmingham Park and Recreation Board: Tulips, bulbs, and advice.
11. Alabama Power Company: Two power poles (for footlog bridge), many tons of ground wood chips.
12. Hasting Seed Company: Discount on purhcases and advice.
13. Ornamental Iron Company: Aluminum dial for sundial.
14. Highway Department: Fill dirt and top soil.
15. Tubular Service Corporation: Pipe to erect Martin gourds.
16. Birmingham Women's Conservation Club - $30.00.

17. Cheerful Gardeners Club - $15.00.
18. Bonnie Plant Farm - Garden plants and seeds.

This project has received much praise, interest and publicity in our area. The school has received two awards:
1. U.S. President's Environmental Award Certificate to School and to 611 science students.
2. Birmingham Beautification Award 1972-73.

A slide presentation showing the development of the various areas with changes due to progress of the work and seasonal changes give us a complete visual record. This presentation has, naturally, changed and varied with the growth of the project, and the type of audience.

-Agnes Hunt and Eugenia Corina
Supervisor and Department Chairman

PROGRAM TITLE: TITLE III, ENVIRONMENTAL EDUCATION

DIRECTOR: Dr. Michael A. Magnoli, Mobile County School Board, P.O. Box 1327, Mobile, Alabama 36601. (205)438-6011 Ext. 460 or 395

The Mobile County Public School System serves eighty-two schools with a total enrollment of approximately 65,000 students spread throughout a geographical area of approximately 12,450 square miles. Forty-one percent of the enrollment is concentrated in the inner parts of the metropolitan areas of the county. The history of environmental education in the Mobile Public Schools dates back to before 1951 when teachers were leading field trips to various facilities around the area to illustrate basic concepts and environmental concerns. Impetus for a concerted program developed around 1965 when the Board of School Commissioners set aside a 640 acre tract of school board land to be used as an outdoor learning center. As was the dominant attitude throughout the country at this time, Mobile citizens naturally equated outdoor education and environmental education as a multidisciplinary concept arose. In 1973, the Mobile County Public School System pulled together a functional committee representing local conservation agencies, educational institutions, industries, and government in an effort to formulate concerns and goals for environmental education and the children of Mobile County. Although this committee recommended that the school system move ahead with development of an outdoor center, it stressed that the environmental education program should be interdisciplinary in approach, spanning all subject areas and all grade levels.

During the academic year 1973-74, a group of Mobile teachers and administrators met on a regular basis in order to:

1. Analyze the structure and organization of the present curriculum relative to environmental education.
2. Interpret various "environmentally" oriented teaching techniques.
3. Assist with design for facilities at the outdoor learning center.
4. Examine school board policies and administrative procedures which were pertinent to environmental education.
5. Help develop an environmental education grant proposal.

As a result of the cooperative efforts between the citizens of Mobile County and the teachers and administrators of the Mobile Public School System, the Mobile Public Schools received a $125,000 Title III Grant for 1974-75, to be used in helping to develop a comprehensive environmental education program. Although funding has been received only recently, the active participation of so many people in the past provides an organized data base by which the project can begin several months, and in fact several years ahead of schedule.

The Mobile program is designed to be unique in several ways. Environmental education in the United States has moved through a series of philosophical stages in which various types of concepts have been stressed, ranging from conservation through outdoor studies and into what most people like to refer to as a multidisciplinary approach. Many systems therefore have abandoned the use of natural areas or outdoor centers because they do recognize such areas can be designed in such a way that students will grow to appreciate environmental problems as exclusive of economics, law, social sciences, natural sciences, and technology. Mobile's program however, will uniquely capitalize on the development of an environmental education center, which will be located on a 640 acre undeveloped site. The center will serve as the hub for development of multidisciplinary materials, classroom and campus activities, community projects as well as outdoor studies. No part of the program is designed to be dominant over another. The proper functioning of Mobile's program is built on the definition of environmental education prepared by Mobile teachers:
"Environmental education is an interdisciplinary/multidisciplinary process, which fosters awareness of man's total environment (natural and manmade), identifies ecological relationships and principles, promotes problem solving and decision making, and encourages behavioral modifications leading to improved quality of life."

The principle factors in this definition include awareness, understanding of ecological principles, problem solving and decision making, and the goal of the program is to provide students with the types of information necessary for them to make a wide variety of environmentally competent decisions as citizens.

The project provides for a staff of four people including the project director, three teachers, a secretary, and a library clerk. The following diagram illustrates the philosophy of Mobile educators toward environmental education:

1. ways to experience the natural and man altered environment
2. basic principles upon which the biosphere operates
3. ways to assess environmental problems

Educators provide
to Students
who become environmentally literate citizens
capable of making wise decisions

4. realization of necessary "trade-offs"
5. unbiased alternative approaches or solutions to problems

The primary obligation of educators is not to change the behavior of students so they fit a pre-defined pattern, but rather to provide students with the types of information and experiences necessary for them to become environmentally literate and capable of making wise decisions. Students need to be provided with (1) ways to experience the natural and man altered environment, (2) understanding of basic principles on which the biosphere operates, (3) ways to assess environmental problems, (4) the realization of necessary "trade-offs", and (5) unbiased alternative approaches or solutions to problems. This program is designed to provide students with that kind of information.

The project staff will serve as resource people to promote activities in local schools and local classrooms which will be designed by teachers and students themselves. The schools in Mobile County extend from areas in the northern part of the County concerned with oil exploration and timber management through the inner-city portions of Mobile to small fishing villages along the coastal region. Consequently, each school is set in a unique environment and the students are receptive to activities oriented to this environment. Instead of producing massive curriculum guides and then attempting to instruct teachers in ways to use the material, the project staff will capitalize on the ideas of teachers at the local classroom and school level, and then foster and promote these ideas. Some schools will be interested in urban development studies, some with water pollution studies, some with population control, some with atmospheric analyses. The project staff will provide teachers with materials and printed information to help gender these kinds of activities.

The specific types of services which the project will provide local schools include:

1. Assistance and materials for
    a. campus wide projects such as school beautification, recycling campaigns, or outdoor gardens.
    b. classroom projects such as indoor gardens, collections, terrarium and aquarium installations.
2. Help in planning and executing field trips to:
    a. the outdoor learning center - including pre and post field trip activities, guided tours, and instructional programs designed for specific units of study and grade levels.
    b. community facilities including industrial sites, sewage treatment plants and marine facilities.
3. Provide speakers on subjects related to environmental education.
4. Identify community agencies to assist with the specific campus or classroom problems or activities.
5. Provide up-dated bibliographies of certain subject areas including where such materials can be found.
6. Provide an environmental education resource center cross referenced by subject area and grade level and including printed materials, staff developed activities and commercially prepared materials.

-M. A. Magnoli

PROGRAM TITLE: ENVIRONMENTAL EDUCATION PROGRAMS, STATE OF ALABAMA

DIRECTOR: Miss Erline Curlee, Science Consultant, State Department of Education, State Office Building, Montgomery, Alabama 36104. (205)269-6151

ERIC DOCUMENT:
Environmental Education in Alabama. A Comprehensive Approach.
ED 082 984

PROGRAM TITLE: ENVIRONMENTAL EDUCATION CURRICULUM DEVELOPMENT

DIRECTOR: Dr. Theresa Kisor, Piedmont City School District, Box 232, Piedmont, Alabama 36272. (205)447-8831

Objectives:
1. To provide students with a learning problem that is action-oriented where the problems and possible solutions, progress, and results can be perceived.
2. To provide students with a scientific framework on which they can organize new information which they acquire from other sources.

3. To provide students with opportunities to continue interdisciplinary interest in local environmental alternatives.
4. To acquaint students with various governmental or private agencies whose task is to assist in environmental control.
5. To maintain and expand student interest in environmental education and to increase awareness in the local population of the conditions of the environment, its problems, and possible solutions or alternatives.
6. To teach problem-solving techniques through careful study of alternatives in community and classroom activities.
7. To develop in students and the general population the conviction that environmental study and care is an on-going, life time common and co-operative interest.
8. To develop in students a sensitivity to human needs as related to their environment.

Two classes of environmental education have been organized in two of the three schools in the Piedmont City School District. A two period block of time has been added to the Middle School and to the high school and is offered to students as an elective course.

The first semester of class centers around field trips. After a brief orientation of four days to review relevant materials, to plan procedures, and to establish goals the following months will be field investigations and class evaluations of the trips.

These investigations will center around studies in conservation, erosion, model development, manufacturing, water supply, sewerage, garbage disposals, and similar environmental areas within the country.

When the field work had been completed, a study of the county problems will begin in the class periods. Each problem will be considered on the basis of its probable cause or causes and possible solutions, problems will be listed in order of priority---either for magnitude of the problem or case of solution.

Activities of the students will include:
1. Group letters to newspapers, companies, individuals, governments, and governmental agencies urging possible protective legislation.
2. Posters and art work will be made and distributed to schools and community agencies in order to develop sensitivity to the environment and its impact on man and his social life through the use and study of the senses.
3. Assembly programs and presentations will be given at the elementary school, Boy Scouts, Girl Scouts, P.T.A. meetings and other civic groups.
4. Class projects will include movies and slides that can be used with talks and demonstrations.
5. Students will develop a nature spot on campus, planting appropriate plants with signs identifying types of plants, land formation, and soil types using organic gardening procedures.

6. A cooperative program will be developed by the schools and the city officials to share involvement on relevant environmental problems.

The second semester will be laboratory oriented rather than field-oriented. The first six weeks will be devoted to mastering basic laboratory techniques and the scientific principles involved. The latter part of the term will center on very basic water and soil analysis with special emphasis on the effects of insecticides, sewerage, landfills, erosions, and overgrazing.

The City of Piedmont has become acutely aware of many economic and social problems in our present society. In an attempt to upgrade the living standards of its people, the City Council voted to participate in Urban Renewal. As part of this program, the school district has attempted to develop a curriculum that would involve school and community in environmental care and protection.

Piedmont High School and Frances E. Willard Middle School have curricula which focus attention on environmental investigation and self-help projects. Various aspects of environmental education are considered in ecology, general education, social studies, general science class, current events, and English classes.

The city is attempting beautification through the remodeling of the downtown area. In other sections of town, a large number of housing projects have been developed to upgrade housing. New industries are recruited for industrial parks.

All these factors influenced the decision of the school to involve students in the community project. Various meetings involving community leaders, students, and faculty were held to determine needs, goals, objectives and various strategies to implement an environmental education program. A project was written and submitted to the Department of Health, Education and Welfare (P.L. 91-516).

Several problems have already been encountered although the implementation of the project is only two months old. Various city officials within the county are apprehensive about letting the students find out what the problems really are, since they fear adverse publicity. Tension is running high in Piedmont especially since Alabama Power Company has increased rates to such an extent that the same residents within the city had their electric bill doubled in the month of October. Increased cost of gas has caused city officials to vote to force schools to pay electric and gas bills, a service that the city has traditionally given the schools. With just this issue students can examine social, economic and political issues relating to environmental problems. Students are presently considering various solutions to these as well as other problems.

The Piedmont City District hopes to expand its program for more community involvement in problem solving.

Units of instruction are being developed by the system and will be available for distribution by the end of the school year.

-T. Kisor

PROGRAM TITLE: PROJECT OUTREACH

DIRECTOR: Lyman L. Jackson, Coordinator, Phoenix Union High School, 2042 W. Thomas Road, Phoenix, Arizona 85015.

ERIC DOCUMENTS:
1. Student Action for the Valley Environment (SAVE). ED 081 601
2. Teaching Environmental Pollution, Grades 4-6. ED 081 602
3. Teaching Ideas About Man and the Environment. ED 093 590

PROGRAM TITLE: HUMBOLDT COUNTY SCHOOLS OFFICE OF ENVIRONMENTAL EDUCATION

DIRECTOR: William R. Gaffaney, 514 K Street, Eureka, California 95501. (707)445-7207

Introduction:
The entire instructional program is desgined to develop in students an environmental ethic which will serve as a guide to the sanative use of the environment. Instructional goals are:

1. Students will increase their understanding of "Ekistical" (environmental) concepts leading to a holistic view of the environment.
2. Students will increase their problem solving skills related to environmental activities.
3. Students will better identify the consistency/inconsistency between their values and actions relative to the environment.
4. Students will display an increased sense of self competence and importance relative to their actions in their environment.
5. Students will develop an expanded reality base relative to their own environments.

The uniqueness of the program is that it is man-centered. It is not a science program. At the elementary level, the program concentrates on developing environmental decision making skills rather than upon studying environmental issues. It is our feeling that the larger "environmental problems" be dealt with at the secondary level. The job of the elementary school is to provide the student with the "tools" he will need in working with such problems in high school and later years.

History:
The project was funded in July 1972 with an initial grant of $103,945.00 from E.S.E.A. Title III and in the spring of 1973 a grant of $20,000.00 was received from the State Environmental License Plate Fund. The first six months were spent planning and developing project activities. The major activities have been:

1. development of "task card" student activites
2. teacher in-service
3. environmental awareness site field trips
4. Wolf Creek Environmental School

These activities were developed and pilot tested the first year, field tested the second year and are now being revised and fully implemented this year. Funding for the second year, 1973-74 was $148,138.00 E.S.E.A. Title III and $113,582.00 E.S.E.A. Title III for the "phase-out" year 1974-75.

The staffing of the project has also been aided by various government employment programs. The success of the project over these three years can be best attributed to the unusual ability of the staff to work together cooperatively over long, intense periods. "Process" people who can work together, rather then "content" people tied to their subject, is the key ingredient to a successful project. We are looking forward to a "dissemination" grant for 1975-76 of approximately $80,000.00.

Present Work:
Our chief emphasis at K-8 now is:

1. An in-service package related to project developed materials and instructional methods.
2. Facilitation of environmental awareness site field trips.
3. Facilitation of the Wolf Creek environmental school program.

We are now in the final printing of all curricular materials which will be packaged into a "Resource Kit" consisting of 200 activity cards geared to primary, intermediate and upper grade levels. Teacher manuals for instructional methods, classroom communications, environmental awareness site trips, Wolf Creek outdoor school visits, and student contracting will be included. Cost will be approximately $20.00.

Problems Encountered:
The biggest problem we have encountered is that of administrative support at the building principal level. We have paid attention to teacher needs, but have not done enough with principals. This year we are holding special administrative workshops relating environmental education as one vehicle to help in meeting broader school climate goals. In other words, what can environmental education do for the principal? So far results have been great in the smaller districts. The larger districts, with many competing priorities, still require a great deal of work.

Major Impact:
Our greatest impact has been causing teacher change through the in-service program. We emphasize "modeling" during all of our workshops. That is, treat the teachers as you wish them to treat the students. We insure that the "human environment" is warm, comfortable and trusting, by providing music, good food, comfortable accomodations, pleasant films and slide shows, etc. Typical teacher comments are: "Even though it takes a lot of my time, I always enjoy coming because I know you guys will take care of us." - Jim Archer, 5th Grade, Peninsula School. "I've never worked harder in workshops and felt as good about them as I do with environmental education." - Kaye Humphrey, 6th Grade, Dow's Prairie School. Project teachers are using small group (six students) learning activities, resources outside the classroom, and opening up their classrooms, and developing new activities on their own to a greater extent than they have ever done before. The workshops give them reinforcement from each other. Continuing in-service is essential for the development of the five qualities in more teachers (Holistic View, Problem Solving, Values/Action Consistency, Self Competence and Importance, and Expanded Reality Base).

-W. Gaffaney

PROGRAM TITLE: FT. ROOSEVELT ENVIRONMENTAL AWARENESS CENTER AND MUSEUM

DIRECTOR: James N. Parks, Principal, Roosevelt School, P.O. Box G-1067, Hanford, California 93230. (209)584-5561 Ext. 60 or 61

The environmental education and outdoor education program for sixth grade students began in 1964. The site facility was started in 1969 and will be completed in June 1975. A State grant was received in 1972.

There has been much student and community involvement in developing the facility.

We hope for continued development of the facility and eventual guide and other publications.

-J. N. Parks

PROGRAM TITLE: TOTAL COMMUNITY SCIENCE LAB PROJECT

DIRECTOR: Dr. Richard Altimari, Director of Special Programs, Huntington Beach Union High School District, 1902 17th Street, Huntington Beach, California 92648. (714)536-9331 Ext. 223/245

The Total Community Science Lab Project is a complete and comprehensive concept for total community environmental protection and education designed to implement and encourage programs and foster attitudes consistent with the development of a responsible community environmental ethic in an atmosphere of concerned public, private and academic cooperation. The program seeks to provide participants (the community in general and high school students in particular) with much needed background in basic ecological relationships and principles, the analysis and clarification of values, community resource and problem information and the opportunity to share in an decidedly multidisciplinary experience.

The principal objective of the project has been to provide a program to assist youth in the acquisition of a responsible global environmental ethic including the attitudes, values and skills necessary to understand, analyze and participate in the solution of environmental problems. Subordinate objectives assume growth on the part of teachers (through local in-service training) which will allow them to: 1) incorporate environmental education principles into the existing curriculum; 2) assist students in the discovery of the basic ecological principles and relationships underlying the process of environmental problem solving and decision making; 3) encourage and assist students to assess their own behavior and to express attitudes, feelings and other value indicators; 4) participate with students in the consideration of community environmental issues, identification of problems, assessment of alternative solutions and decision making, and; 5) assist students in attempting to apply their appropriate solutions to community problems.

These programs deal with man in his environments and make extensive use of both human and physical resources found in the immediate local area. The objectives of these programs are both pedagogic and social: to capture the interest of students by making use of their own perceptions and experiences and to channel this interest into constructive learning patterns, while at the same time stimulating a more sensitive awareness of the interrelation of environments or the "total environment" in the community at large.

The Total Community Science Lab Project concept emerged from an early (1971-72) Environmental Education Act grant project here in the Huntington Beach Union High School District. That project involved the design, implementation and operation of a Nature Center on the Huntington Beach High School campus. As a result of students interacting with the community during the course of this project, more interest began to develop in community based, problem oriented projects which addressed particular local environmental

issues. The result has been a proliferation of projects, activities, ideas and organizations designed to get kids outside of the classroom and into the community, learning through people, places and things that really make a difference in their daily lives. Their early work on the Huntington High Nature Center resulted in publication of Urban Wild: A Manual for the Development, Implementations and Operation of Nature Centers on School Campuses. "Urban Wild" received mention in Environmental Education Report and has been disseminated all over the United States to interested groups including nationally prominent organizations like Audubon and the National Wildlife Federation. A sampling of ongoing projects and activities follows:
1. Huntington Beach Pier Marine Station - Students conduct investigations of local inshore, estuarine and harbor environments providing valuable assessment information to the City Department of Harbors and Beaches.
2. Coastline Study - Students participate in marine water quality monitoring project being conducted by Department of Harbors and Beaches. This project has been responsible for the development of a much more comprehensive data base than has ever existed, pertinent to one of the City's most precious resources, its recreational beaches and harbors.
3. "Crisis Kids" and Ecology Days - This group of students from the Environmental Crisis class at one of the District's schools plan, organize and conduct four or five "Ecology Days" each year. "Ecology Day" involves high school kids "taking over" a local elementary school for an entire day and conducting (as teams) various activities designed to stimulate the environmental awareness of the elementary kids who really do look up to them.
4. Huntington Beach Central Park Nature Center - Students were instrumental in obtaining and developing 17 Acre Nature Center in recently completed Central Park. Completed base line studies of flora and fauna native to the Center in Spring of 1974.
5. Salton Sea Media Project - Students produced a narrated and scored slide/tape presentation featuring a weekend field trip to the Salton Sea for a comprehensive environmental survey of the area. Project numbers 3, 4, and 5 received first place, second place and honorable mention (respectively) at the 1973-74 Orange County Department of Education Environmental Merit Award ceremonies.
6. Local students organized a Students Advisory Group, an auxiliary of the recently formed West Orange County Environmental Education Association, a consortium of educational agencies.
7. Huntington Beach High School Archeological Artifacts and Fossil Recovery Team - A team of students lead by a prominent local geologist, active in the recovery of archeological artifacts and endangered fossils threatened by destruction or loss resulting from extensive development and construction in the community.
8. Proposed Community Environmental Education and Urban Interpretive Program - Proposes a joint powers agreement between the City of Huntington Beach and various other agencies including the High School District for the purpose of increasing the flow of benefits which the public now receives through the Municipal Park System. The High School District's contribution to this

idea is in the form of a proposal entitled: The Educational Implications of the Huntington Beach Municipal Park System.

Problems encountered during the earlier phases of our program are finding enthusiastic people to sustain the program who are not already involved in other things. As usual, the most committed people have many irons in the fire and thus tend to be overworked.

Funding for environmental education was and is the major problem, although we do manage to get a great deal of mileage out of the few dollars we've been able to garner. In order to become involved on the scale we would like, much more money is needed. One approach that may be tried this year would involve students as concessionaires in a recreational fisheries venture here in the City. We hope that this exercise in free enterprise will prove to be as valuable profit-wise as we hope it will be instructionally.

Plans for the future involve two more project areas. We hope to utilize high school students as "Interpretive Naturalist Interns" and as "Park Rangers" in the Municipal Park System. More particularily, 1975 is the target year for the design and construction of a "Handicapped Trail" at the Central Park Nature Center.

On a grander scale, we hope someday to implement the "Mobile Environmental Monitoring System," an environmental and instructional laboratory on wheels. We see this project unit as developing in four phases designed to enhance the ability of our students to investigate, describe, and develop solutions to both local and more pervasive environmental problems through an extension of the outreach capability of the Coastline Study already mentioned.

-James Gilmore
Project Development Assistant
Community Science Lab Project Coordinator

ERIC DOCUMENT:
Urban Wild: A Manual for the Development, Implementation, and Operation of Nature Centers on School Campuses. SE 018 318

PROGRAM TITLE: ENVIRONMENTAL EDUCATION PROGRAM, LOS ANGELES SCHOOLS

DIRECTOR: Grant R. Gary, 1044 N. Hayworth, Los Angeles, California 90046.

ERIC DOCUMENT:
Guide for Teacher Inservice in Ekistics. A Study of Man in His Environment. SE 018 260

PROGRAM TITLE: MULTI-GRADED SUMMER SCHOOL CONSERVATION PROJECT: 4-11 GRADE

DIRECTOR: R. C. Read, Program Director, Sinaloa Junior High School, Novato Unified School District, 1015 Seventh Street, Novato, California 94947.

The program was operational for four years, ending 1971. It has not been offered to this community since.

The staff wrote a 76 page project model for others to follow under a grant from the California State Department of Education.

-R. C. Read

ERIC DOCUMENT:
A Multi-Graded Conservation Education Summer School Model.
ED 067 234

PROGRAM TITLE: ENVIRONMENTAL EDUCATION PROGRAM

DIRECTOR: Santa Rosa City Schools, P.O. Box 940, 211 Ridgeway Avenue, Santa Rosa, California 95402. (707)528-5331

This program, funded in 1972 under P.L. 91-516, has been dropped due to lack of funds.

-Quentin R. Bryan
Assistant Superintendent
for Curriculum

PROGRAM TITLE: DEVELOPMENT OF AN ENERGY USE/SYSTEMS ECOLOGY INSTRUCTIONAL MODULE FOR SECONDARY SCHOOL STUDENTS

DIRECTOR: William V. Mayer, Biological Sciences Curriculum Study, P.O. Box 930, Boulder, Colorado 80302. (303)666-6558

The purpose of this project is to develop and evaluate curriculum materials for an instructional module, to be used at the high school level, focusing on the application of selected ecological concepts and ideas from elementary systems analysis to the investigation of patterns of energy consumption in the local community. Two main organizers of ecology, energy flow and materials cycling, will form the central concepts of this module. Ideas from elementary systems analysis, coupled to the concepts of negative and positive feedback, will provide the vehicle for developing a problem-solving model with broad applicability to environmental/social problems.

The objectives of the program are:
1. To give students experience with a problem-solving model through a systematic analysis of energy use in the local community that can be applied to understanding and investigating environmental problems and weighing alternative solutions thereof.
2. To develop an understanding that man's use of energy and resources follows the same basic patterns (and laws) that govern the structure and functioning of ecosystems, and that comprehension of these basic patterns has utility in the resolution of environmental/social problems, i.e., transfer of ecological concepts to environmental investigation and decision making.
3. To investigate patterns of energy consumption at the national level.
4. To serve as a transitional sequence from usual instructional materials and modes, preparing students to adopt an active inquiry role of study.

Program is currently in initial stages.

-Faith Hickman
Staff Consultant

PROGRAM TITLE: THE CULTURAL RELATIONSHIP OF MAN TO HIS ENVIRONMENT - PAST, PRESENT, FUTURE

DIRECTOR: L. L. Livingston, Joint School District 50, Route 1, Box 127, Delta, Colorado 81416. (303)874-4438

Objectives: Develop instructional materials, media and activities:
1. Grades K-6: Designed to identify, distinguish and demonstrate the cultural relationship between man and his environment over a continuum of time from primitive man to present society which will enable the student to describe orally or in written form his interpretation of man and his changing environment.
2. Grades K-6: Designed to identify, develop and reinforce a positive environmental ethic which results in student demonstration of desired behavioral responses to simulated and real life situations requiring environmental judgment.
3. Grades 7-8: Designed to analyze the physical and cultural environmental of Delta County as representative of the average rural western community through student centered projects wherein the students will be able to study and define the basic traits common to western rural America.
4. Grades 7-8-9: Designed to demonstrate the interdependency of rural and urban citizenry upon one another as related to their respective environments wherein the students will compare the interchange of the contributions between Delta County (rural) and Denver (urban) environment.

5. Grades 10-11-12: Designed to enable the student to identify current environment problems in Delta County through field trips and meetings with local, state and federal agencies; and to work toward the ultimate solution of these problems through the study of approved environmental procedures and practices and the construction of an environmental-action plan wherein major environmental problems are documented and possible solutions offered.

Project History:
1. Principal originator: Mr. Harry Anderson, Vocational Director.
2. Date and place of initation: September 1, 1971 - Joint School District No. 50. Funded - ESEA Title III three years.
3. Overall project purpose: To show in perspective continuity the effect of man's culture on his environment and how man has adjusted to and utilized his environment to achieve his present day sophistication to the exculsion of proper environmental planning and control; and, how man might best make use of his environment in the future.

Project Summary:
1. Development of a community advisory council organized into working committees, made up of individual citizens, students, Forest Service, Soil Conservation, County Planning Commission and municipal representatives.
2. Development of a core of twelve project teachers and two principals representing eight different schools, eighth grade levels, actively involved in instructional development and school and community activities.
3. The construction of instructional media and activities for all grade levels.
4. Development of four outdoor areas to be used for instructional activities.
5. Development of a portable (D.C.) weather station capable of monitoring and recording wind speed and direction, air temperature, ground temperature, humidity, rainfall and water pH on a clock timed schedule.
6. Development of an environmental simulation chamber.
7. Development of Environmental Studies Invitational Fair.
8. Program teacher selected "National Environmental Conservation Teacher of the Year".

Materials:
1. K-6: Eight media and instructional units developed around basic major stages of the cultural relationship between man and his environment - Grades 3-6.
2. Development of a total of 18 problem solving instructional units simulating environmental situations which require an ethical decision as part of the solution - Grades 1-6.
3. Development of a nine week study (45 hours) in Colorado History designed to analyze the physical and cultural environment of Delta County, and to demonstrate the inter-dependency of rural and urban citizenry upon one another as related to their respective environment.

Materials Implementation:
1. Number of schools now using entire set of materials: 2.
2. Number of teachers having adopted all of the project materials: 7.
3. Number of teachers using some of the project materials: 24.
4. Total number of students using project materials: 430.
5. Names and locations of schools where the program materials are being used:
    a. Paonia Elementary School, Paonia, Colorado 81428
    b. Hotchkiss Elementary School, Hotchkiss, Colorado 81419
    c. Hotchkiss High School, Hotchkiss, Colorado 81419
    d. Cedaredge Elementary School, Cedaredge, Colorado 81413

-L. L. Livingston

PROGRAM TITLE: PROGRAM IN CONSERVATION, COLORADO DEPARTMENT OF EDUCATION

DIRECTOR: George A. Ek, Jr., Conservation Programs, Colorado Department of Education, State Office Building, 201 E. Colfax, Denver, Colorado 80203. (303)892-2212

The conservation program is part of the interconnecting relationship between air, water, soil, and energy - the total environment as affected by man's actions. The goal is to help learners discover what effect their decisions and actions have upon others and themselves, and to develop a sense of responsibility for living things that are dependent upon mankind for survival.

Wildlife and the soils that nurture their habitats are examples of renewable natural resources that man can save. The challenge is to learn how to conserve our diminishing mineral and energy reserves without spoiling our air and water nor sacrificing our soils and wildlife. By careful decision making and long range planning, adverse impact can be minimized in order that our legacy of North America's natural beauty can be passed on to future generations.

The conservation program is as varied and challenging as our environment - as global as our Earth, as fascinating as a humming bird, and as complex as a single human being. Conservation education seeks to wed viable learning processes to achievements and excellence in knowledge, attitude, and behavior through cooperative efforts between schools and colleges in both preservice and in-service. Activities related to outdoor education foster development of motor skills and lifetime sports, and are linked to avocational and career fields. Work-earn-learn opportunities are assisted through conservation youth programs sponsored by other federal and state agencies and organizations. Dissemination of conservation information to schools is a vital, joint inter-Department of Education effort with the Colorado Division of Wildlife and Keep Colorado Beautiful.

The promotion of pilot programs is closely linked to the accountability process. The administration of grants to school districts and scholarships for students and teachers is dependent upon the support of many public and private groups, particularly the U.S. Department of Education, Colorado Soil Conservation Districts, the Garden Clubs of Colorado, and the Izaac Walton Leagues.

State and federal agency liaison and cooperation are basic to the program, for conservation and environmental education extends far beyond the school fence line and presently also involves commerce and industry. The Department of Education program is jointly administered and financed by the Colorado Division of Wildlife.

-G. A. Ek, Jr.

PROGRAM TITLE: NORTHERN COLORADO OUTDOOR NATURE CENTER PROJECT

DIRECTOR: Howard C. Bruner, 1300 Yount, Fort Collins, Colorado 80521.

ERIC DOCUMENT:
Northern Colorado Outdoor Nature Center Project, Poudre School District R-1, Fort Collins, Colorado. Final Report. ED 077 610

PROGRAM TITLE: ROARING FORK OUTDOOR EDUCATION

DIRECTOR: Roger Zastrow, Roaring Fork School District RE-1,
Box 820, Glenwood Springs, Colorado 81601.

The main objective of our program is to give to the student a basic understanding of his environment, its complexity, its beauty and his effect upon it. It is hoped that at the end of his environmental education experience he will develop a personal environmental ethic which will be both beneficial to himself and the environment.

This is the first year for the Roaring Fork School District to have a full time environmental resource teacher. Presently we are offering an eight day environmental program at the 6th grade level. The program includes the following units: environmental awareness; plant ecology; animal ecology; weather; soil ecology; map and compass instruction; fresh water biology; astronomy; and geology.

The student spends two additional days hiking in the Rocky Mountain high country applying the knowledge he has learned in the units mentioned above.

The majority of these units were developed from Bureau of Land Management's "All Around You", an environmental study guide, and the Forest Service's "Environmental Education", for teachers and resource people.

The main modification is that of more individual student activities. All guides are developed along the Forest Service "task concept".

Future plans include developing a three-day 8th grade environmental education experience. This will be developed around a "Human Ecology Theme".

-R. Zastrow

PROGRAM TITLE: EDUCATION FOR SURVIVAL

DIRECTORS: Alice Spengler and Virginia Way, 7200 North Lowell Blvd., Westminster, Colorado 80030. (303)428-3511 Ext. 35

Rationale:
This project is directed toward the students, the teachers, the parents, and the community of School District No. 50. It comes at a time when there is great interest in relating creatively to our technological concerns of the Seventies. We hope the project idea will be an inspiration to other school communities in Colorado as well as the nation.

Educational Objectives:
1. Create in learners an understanding of man's interdependence with his environment: his physical, biological, ecological, social, and cultural interrelationships.
2. Examine some basic attitudes about our, and others, values towards the above interrelationships.
3. Investigate local, regional, national, and global levels of environmental values conflicts, seeking conflict resolution.
4. Provide valid curriculum materials and resources so that as many students as possible can experience instruction in environmental control according to their levels of individual learning and conceptualization.
5. Stimulate learners through action-centered programs to be aware of how to actively participate to develop programs consistent with their values and levels of environment commitment.

General Goals:
1. To enrich District commitments to Environmental Education Programs K-12.
2. To provide an Environmental Education Center to help to motivate K-12 learners, with emphasis for this project on K-6 learners, to be enthusiastic and interested enough to better understand and be sensitive to environmental issues: a Center capable of providing access to information, agencies, organizations, and other resources that will assist learners with the goal cited above.

3. To develop and refine with alternative teaching strategies those concepts that synthesize for the learner behavioral outcomes that are identified and measureable at the cognitive, affective, and psychomotor domains.
4. To operate in-service training sessions to help teachers utilize resources. To assist teachers to coordinate the components on the mobile satellite into a unified learning experience for students.
5. To provide units in the activity orientated "hands on" mode.
6. To provide unique opportunities to promote environmental awareness in the total community.
7. To utilize the multimedia systems approach for the inquiry learning method.
8. To provide a mode of field testing the curriculum components.

Specific Objectives:
1. To provide a curriculum design of environmental studies developed in scope and sequence which will provide a background of basic awareness of the symbiotic relationship of all living systems, their interdependence and of man's interaction with various cultural and technological settings at the local, regional, national, and global levels.
2. To promote the development of values and attitudes towards these problems and provide action-centered programs of a wide range and variety such as: field trips, creation of outdoor trails, etc.

Problems and Solutions:
Major problem is the threat of "change" itself. We have tried to approach the problem in a low key, facilitating mode. -- "Need help?, just ask".

Successes:
1. Increased and expanded interest in projects at the school level.
2. Expansion of Resident Program from three to nine schools in one year.
3. Increased and continued use of project materials.
4. Evidence of program "design" at the school level.

Plans for the Future:
1. Continued support upon request from schools.
2. Continued evaluation of materials.
3. Develop resource file of local projects for reference as they are produced and refined.
4. Continued acquisition of newly developed materials as they become available and are recommended by our teachers, students, and staff.

Evaluation:
The project is being evaluated by the method specified in the project. (See Education for Survival).

-V. Way

ERIC DOCUMENT:
Education for Survival. A Project Under Title II Elementary and Secondary Education Act of 1965 for Fiscal Year 1973, School Year 1973-74. ED 093 298

PROGRAM TITLE: PROJECT LIFE

DIRECTOR: Dr. Bette J. DelGiorno, Fairfield Public Schools, 214 Main Street, Southport, P.O. Box 220, Fairfield, Connecticut 06430. (203)255-0421 Ext. 245

Our project was not funded. However, we do have an Environmental Education program: Environmental Awareness Program, Grades K-2; River Laboratory Study, Grades 3-6; Oceanography, Grade 6; Man and His Biosphere, Grade 8; Environmental Studies, a semester course in high school.

Presently, we are still working on the School Yard Laboratory program in grades K-6.

-B. DelGiorno

PROGRAM TITLE: PROJECT OCEANOLOGY

DIRECTOR: Dr. Howard M. Weiss, Project Oceanology, Avery Point, Groton, Connecticut 06340. (203)445-9007

Objectives:
Project Oceanology is a marine education center enabling junior and senior high school students to learn about their interrelationships with the ocean through direct on-the-water experiences. Project Oceanology has a fully equipped fifth foot research vessel, the "Enviro-Lab" and a waterfront laboratory, including a running sea water system and instruments to measure water quality, at the Marine Sciences Institute at the University of Connecticut. The Project is operated year round by a consortium of fourteen public and private school systems located throughout Connecticut.

Students participate in Project Oceanology as a part of their regular science and social studies classes. The objective of the program is to develop a general appreciation for the ways in which man uses and abuses this important environment.

Intensive teacher training and community education programs are also conducted by Project Oceanology, including a unique Masters in Marine Environmental Education course of study accredited through Eastern Connecticut State College.

History:
Local school systems first developed the concept of the Project in 1969 as a result of the central importance of Long Island Sound to the economy of the region. A $59,000 grant from Title III of ESEA in 1972 provided the seed money to initiate the program and the 50 foot research vessel was obtained through the Federal Surplus program. Continuation grants from Title III, an NSF teacher training grant, and considerable support from local industries and businesses have enabled the Project to continue and grow. Over 10,000 students have studied Long Island Sound since the Project became operational in April 1973.

Activities:
Our activities include (1) school year on-the-water programs for students as a part of regular course work, (2) school year courses for teachers emphasizing laboratory techniques in marine studies, (3) community education programs for adult groups, (4) curriculum development including filmstrips, etc., (5) special summer programs for students including intensive investigations of problems in the local marine environment, (6) summer institute for teachers emphasizing field work.

-H. M. Weiss

PROGRAM TITLE: CENTER FOR ENVIRONMENTAL EDUCATION

DIRECTOR: Juan A. Sanchez Jr., 269 Oak Grove Street, Manchester, Connecticut 06040. (203)646-5854 Ext. 475

Objectives:
1. To stress and restress repeated exposure to the environment from all points of view using an interdisciplinary approach.
2. To provide teachers (and therefore their students) with materials and experiences that will enable them to feel comfortable in an outdoor environment.
3. Target population: 11,000-12,000.
4. Activities: Workshops; field trips; class visits; demonstration lessons; use of school grounds; nature trails, how to use and construct.

History: The Center for Environmental Education was started in 1968 with Title III funds as Project Outdoors. Today the services of the center are supported during the school year by the Manchester Board of Education, and a summer program is sponsored by the Lutz Jr. Museum in Manchester.

The Center is located on 53 acres of town-owned land that includes a six-acre pond, a stream, several springs, a covered bridge, woods trails, and a well equipped classroom and administration building.

The Center provides a wide variety of environmental educational services to the Manchester schools and three other districts that purchase their services.

Present activities include:
1. Working with students. Students come to the Center for site for "hands on" activities such as taking water samples, testing the pH of the soil, taking soil temperature, measuring the height of trees, smelling and tasting certain wild plants, conducting population studies in the woods, and observing the local plants and animals. The classroom building is also used for experiments, showing films, listening to lectures given by experts and other resource persons, as an environmental library.

In addition, to this on-site work, the staff makes visits to the participating schools. All grades K-12, are eligible to use the Center's staff and materials. Often, the school visits include outdoor work on the grounds of the school.

2. Working with teachers. Teacher training is an essential element of the Center's services. As consultants to all teachers in all disciplines, the staff of the center helps teachers develop specific units, individual lessons, and entire curricula. In addition, camping trips (long term) for teachers and students are held.
3. Instructional Kits. The staff at the Center have created six instructional kits in the areas of Earth Science, Birds, Forest Community, Insects and Allies, Plants, and Pond Community. These kits include: transparencies, filmstrips, study prints, models, paperback resource books, magnifying glasses, wall charts, lab equipment, mounted specimens, lesson plans and suggested activities.
4. Teacher's Guides for Environmental Education, a series of five separate booklets have been prepared to provide background material, lesson plans, experiments, and activities for teacher-student use. Subject areas include: plants; animals; physical science; communities; man in nature.
5. Lending Library. The Center also serves as a small lending library for books dealing with environmental studies. Visual aids, mineographed materials, and models may also be borrowed by students and teachers.
6. Bi-monthly Newsletter. The Center distributes a bi-monthly newsletter (Voice of the Turtle) to teachers which includes philosophical guidance as well as suggested activities.

Our main problem is the lack of funds to expand the program.

Future plans are to expand the staff and to involve the public more in the program.

-Marie B. Newton
Teacher

PROGRAM TITLE: ROUND MEADOW OUTDOOR LABORATORY SCHOOL

DIRECTOR: Mrs. Lucille M. Leisner, Coordinator, D.C. Public Schools Department of Science, Room 900, 415-12th Street, N.W., Washington, D.C. 20004. (202)737-0980

Eight sixth grade classes per week from the Public Elementary Schools of the District of Columbia attend the Round Meadow Environmental Laboratory School and participate in a program that is based on individualized and small group instruction in environmental education activities. The results of this program have been most positive. A visit to the laboratory school shows that there is a greater degree of interest and participation by students in activities there than in their regular classroom.

Camp Round Meadow, a former Job Corps Center, is located in Catoctin National Park, Thurmont, Maryland.

The camp covers a side expanse of wooded area and includes several streams which are used for study purposes. There are remains of charcoal furnances and stills which were used years ago when the area was farm and cattle land.

The history of the land is an environmental lesson in itself; man cut all the trees for charcoal and exhausted the soil with poor farming practices to the extent that it could no longer support him. The Federal Government then bought the land and set it aside as a park about forty years ago.

Because of its recent function as a Job Corps Center, the camp is ideally suited for year round school use. It is winterized and has the following facilities: dormitories, classrooms, kitchen and mess hall, gymnasium, outdoor swimming pool, tennis courts, lodging for the portion of the staff which does not live with the students and a craft center.

The National Park Service, which cooperates in the program, contributes the following to the laboratory school:

1. Free use of the physical plant.
2. Maintenance supplies (toilet tissue, cleaning supplies, etc.)
3. Kitchen equipment and its maintenance.
4. Blanket and linen replacement.
5. Trash and garbage collection.
6. A Camp Director (to oversee park facilities - no responsibility for operation of school program).
7. Inter-camp transportation, if necessary.

-Lucille Leisner

PROGRAM TITLE: FOXFIRE LEARNING CONCEPT - ENVIRONMENTAL COMPONENT

DIRECTOR: Murray E. Durst, Executive Vice President, Institutional Development and Economic Affairs Service, Inc. (IDEAS), 1785 Massachusetts Avenue, N.W., Suite 101, Washington, D.C. 20036. (202)483-9045

Objective: To develop an environmental issues component for implementation within Foxfire Learning Concept projects at high schools throughout the U.S. Purpose is to use processes of interviewing, photography, writing and publication from original sources at the community level toward questions of environmental preservation and restoration.

History: Foxfire originated as an inquiry into local folklife by high school students at Rabun Gap, Georgia, in the Southern Appalachians, leading to the quarterly publication of Foxfire magazine and subsequently to The Foxfire Book and Foxfire 2. Extensions from the original Foxfire project have been established in more than a dozen schools from Maine to Alaska, North Carolina to Texas. These projects lead secondary schools to rediscover their own immediate cultural roots through the recording of folklife as remembered and practiced by the oldest generation in their communities. As a matter of course, the students' own discoveries sensitize them to rapidly changing quality in the human experience.

Inevitably, Foxfire participants begin to come to grips with the forces which lead to change - for better and ill - within their communities, especially those forces which severly threaten long held human values uniquely associated with the character of the land. Direct interest in environmental concerns is a natural and logical outgrowth of the Foxfire Learning Concept experience.

The environmental component, developed under a 1973-74 OEE grant, is intended to guide Foxfire projects to address environmental issues as a regular part of their learning and publications process. As such, it will be incorporated into future Foxfire projects developed by IDEAS and will lead some to take on an environmental focus at the outset.

Present environmental activities:
The environmental component developed by this project is being incorporated in the teacher and student oriented instructional materials published by IDEAS for use in Foxfire Learning Concept programs. These materials are planned for immediate use in up to twelve new Foxfire projects now being formed in Hawaii, Colorado, Alaska, North Carolina and the U.S. Virgin Islands. When published in final form, they will be made available for distribution to individual schools, teachers and students.

A Foxfire project in the U.S. Virgin Islands, to be known as All-Ah-Wee, was begun in the summer of 1974, involving students from eight schools on three islands in cooperation with the Island Resources Foundation. This project is planned to focus on environmental issues from its inception. It will lead to a student produced quarterly publication marketed within the Virgin Islands and to tourists and thus should have significant public impact for environmental awareness. Initially, some two thousand copies of each All-Ah-Wee issue will be printed and distributed.

Some environmental articles, i.e., the "Deliverance" piece appearing in the Winter 1973 issue of Foxfire, are being printed separately for dissemination in schools and among the public in order to multiply their readership.

Problems encountered: The principal problem faced was to build an environmental inquiry which flowed naturally out of the basic Foxfire context: the discovery and recording of an indigenous folk culture and heritage. It had to be within the manageable range of secondary student research and should not require a major "crisis" issue.

Ultimately, the model was found in the form of a defined area study, beginning with interviews of original landowners and following through to forces influencing land transfers and projected utilization. The model was found in what is known as the "Betty's Creek article" for Foxfire. Actually the "article" became so inclusive that it will appear as a special issue of the Foxfire magazine in the fall of 1974. "Betty's Creek" gave us the total context story we sought, beginning with the human experience as recalled and lived by the oldest generation and updated to issues of drastic, current change resulting from present day pressures for development and resources exploitation.

Future plans: To incorporate an environmental component in most Foxfire Learning Concept adaptations and to encourage some to take on an environmental focus from their inception.

Published materials: Publication is inherent to the Foxfire Learning Concept; thus, environmental articles will occur from time to time in the future. Currently available are the following:

1. "...Deliverance will come," Foxfire, Winter 1973. Reprints available through IDEAS or Foxfire, Rabun Gap, Georgia 30568.
2. Exchange, Summer 1974, an IDEAS publication, for informational exchange among Foxfire projects. Lead article discusses environmental subjects, describing the environment component within Foxfire and plans for All-Ah-Wee in the Virgin Islands. Reprints available through IDEAS.
3. Foxfire, Winter 1973, Magazine included editorial by Eliot Wigginton titled "From the Land of Nine-Fingered People" discussing why environmental subjects are important.
4. Moments, IDEAS 1974. A discussion of the learning process of Foxfire by Eliot Wigginton, including environmental subjects.

-M. E. Durst

PROGRAM TITLE: PRESIDENT'S ENVIRONMENTAL MERIT AWARDS PROGRAM

DIRECTOR: Joan Donnelly, 401 M Street, S.W., Room 309, West Tower, Washington, D.C. 20460. (202)755-0496

A. OBJECTIVES
1. To recognize, reward and encourage environmental activities by American youth.
2. To create awareness of environmental problems.
3. To serve as a clearinghouse for pertinent environmental education materials.
4. To serve as a personal 'Thank You' from the President to young environmentalists.

B. HISTORY
1. Created by Executive Order of the President on October 25, 1971 (for high schools only).
2. Administrator Ruckelshaus announces expansion to include summer camps on March 10, 1972.
3. First awards ceremony held in White House Rose Garden on April 19, 1972 with Ruckelshaus and Mrs. Julie Eisenhower.
4. Mrs. Eisenhower announces expansion to include elementary and junior high schools on April 19, 1972.

C. STRUCTURE
1. Administered by EPA.
2. Adult supervisor (teacher, camp counselor, etc.) must sponsor young people (students, campers, etc.).
3. Local awards panel selected by each group and representing a cross-section of the community and school evaluates the projects and student participation. Its decision is submitted to Washington; no further evaluation is made at the national level.
4. Certificates, with Presidential seal and signature of merit, or excellence for superior work, are awarded.
5. Campers receive embroidered patches instead of certificates.

D. PROJECT AREAS
1. Environmental education
    a. Science classes: surveys and reports
    b. Geology: erosion studies, etc.
    c. Social studies: life styles and social impact
    d. Economics: financial impact of ecology
    e. Drama and English: written and oral presentations
2. Community services - recycling, beautification, etc.
3. Environmental awareness - articles, posters, etc.
4. Public affairs - presentations to government agencies, etc.

E. EXAMPLES OF PROJECTS
1. Water sampling and analysis
2. Time lapse photographic study of traffic patterns

-J. Donnelly

PROGRAM TITLE: INTERDISCIPLINARY ENVIRONMENTAL LEARNING AREA FOR FLORIDA ELEMENTARY AND MIDDLE SCHOOLS

DIRECTOR: Darryl Taylor, Principal, General Delivery, Clarksville, Florida 32430. (904)762-3329

A. Objectives:

1. Develop, field test, and evaluate ten interdisciplinary ESA units K-8.
2. Train 50+ middle school students to teach elementary school students at least two ESA units.
3. Provide a model ESA for surrounding school districts.
4. Further develop teaching sites on the ESA emphasizing the unique social and natural history of the area.
5. Develop a slide-tape program that will explain the history and be taught there.
6. Submit a final project report to the Bureau of Environmental Education by June 1, 1974.

B. History of Program:

The idea for the development of an environmental studies area at Carr School was that of our junior high science teacher.

We have a natural setting for such a development on our forty acre campus located in a sparsely populated rural area. We have swampland, timberland, oak ridges, springs, etc. on our campus.

We started three years ago with no money and a lot of work from students, the science teacher, and me. We cleared trash dumps, cut brush, dammed a small stream to make a pond for fish, turtles, and an alligator, built a log cabin, and opened a path through a titi swamp. Our nature trail is approximately 3/4 of a mile in length. The Florida Forest Service, Game Commission, Soil Conservation Service, 4-H Club, and several local citizens have been very helpful in developing this project to the point it now has reached.

We used some funds from the general school account to build a pen for deer and to fence the pond we had built. After state funds became available last year, we received $2500 which has been very helpful in enlarging and fencing our pond. We built walkways over two small streams, filled an open garbage pit on the campus, hired a consultant to help us write a guidebook for visitors to the campus, and to help us write the mini-lessons to be taught to other students by our junior high students.

C. Current Activities:

We are presently continuing the physical preparation of our ESA. The primary emphasis this year will be the improvement of our animal confinement area. The Soil Conservation Service is taking a big interest in our project and has disseminated our handbook throughout their offices in the state.

At least two neighboring districts have visited our site to get ideas for developing an ESA of their own. Others have talked with me on several occasions about our project.

Students from our county have visited the project as well as a group from a neighboring county. Many adults in the county visit the animal area and walk the nature trail on weekends. We have not really invited visitors yet, but plan to do so beginning this spring.

We are presently preparing additional mini-lessons on nature, conservation, local history, art, etc. to be taught by our junior high students at various teaching stations along the nature trail. We did some of this with both adults and students at the end of last term.

D. Problems Encountered and Solutions:
We have not run into any particular problems other than finding time to supervise the student work force since most of the work has been done by students. The science teacher and I have helped do most of the supervision along with the P.E. teacher on several occasions. Almost all of our students were eager to help and getting them organized into working units to provide for safety and constructive work has been a problem. Much counseling plus using dependable student leaders as "foremen" of work details helped a great deal. We stayed after school with student volunteers so we could work with and closely supervise work that could not be done entirely by students. We also had some volunteer assistance from a few men in the community.

E. Future Plans:
As previously stated, we hope to complete the physical development of our ESA to the point that we can invite all interested schools to come for a guided tour and instruction by our students. We plan to write at least six new mini-lessons to be taught by our students to other students visiting the ESA.

We plan to continually search for new ideas to improve what we have and add to it each year. We find that students come up with some very good suggestions when encouraged and given the opportunity. We don't anticipate that our project will ever be "completed", but look upon it as an on-going thing that will be of interest to future students as it has been to those who have already left Carr Elementary and Junior High School and are now attending senior high.

We plan to complete the slide-tape presentation mentioned in the project sometime during this school term.

-D. Taylor

PROGRAM TITLE: EXPERIENCE IN LIVING AND LEARNING

DIRECTOR: Glenney B. Bonner, Supervising Principal, Wakulla County Schools, P.O. Box 98, Crawfordville, Florida 32327. (904)926-3806

Objectives: To familiarize the student with the following:
1. To develop in the individual child an appreciation and pride for and familiarization with, the various types of plant and animal life found in the big bend of Florida.
2. To provide an outdoor laboratory, easily accessible to the school, which will contain those components necessary for success.
3. Fuse environmental education into total scope and sequence of Wakulla County School curriculum.
4. Create observable changes in student and community attitude, awareness and behavior.

Environmental Activities:
1. To provide a nature trail facility adjacent to the school campus, thereby eliminating the necessity for transportation for field trips for environmental study.
2. To write student learning curriculum which will be appropriate for our geographic area (both individual and group type experiences).
3. To hold any in-service programs necessary to orientate teachers in the preparation of materials and particular teaching techniques appropriate for this type of study.
4. To solicit the aid and contributions of other professionals who are in fields related to environmental education.
5. To utilize community resource persons or organizations to provide information relative to their vocational experience.
6. This district project will serve as a pilot program to be included in our comprehensive plan.
7. Target population is as follows:

	Students	Teachers
a. in creating the project	367	15
b. as recipients of the project	2000	115

8. Requests for further funding to be made during the next three years are as follows:

Fiscal Year	Estimated Amount
1974-75	$4,930.00
1975-76	$5,000.00
1976-77	$5,000.00

History:
1. Since 1969, students in the Wakulla School District at some time during the school year, have been involved, in a limited way, in learning experiences centered around ecology. This model project as written into the comprehensive plan will offer a more realistic approach toward the development of an interdisciplinary curriculum in our regular school program.
2. Developed materials and processes are incorporated into the school curriculum to be continued as courses of study and/or fused into existing programs.

Present activities include the writing of learning packets of appropriate level and suitable interest to meet the needs of the individual student.

These units are field tested by the teachers and class developing them in a learning situation after which they are shared with other groups to further test their effectiveness as a learning tool. As these materials are tested in the classroom, improvement will be made in content with special emphasis given to include those materials of interest to the student.

Problems: Mini-grant funds insufficient to complete nature trails with learning stations at appropriate locations and to purchase suitable materials for field study in plant and animal life.

Future Plans:
1. This program will be available to all students and teachers in the district.
2. Increase community involvement in school problems.
3. This will serve as a model project to other Florida schools who want to set up their own environmental study area.
4. It will provide all teachers in the country, or in Florida, interdisciplinary curriculum materials to utilize in their program where needed.
5. Provide district wide in-service for all teachers.
6. Student-teacher-community involvement in problem solving approaches to education.
7. Possible community action towards solution of environmental problems.

Publications: Learning packets developed to date by the Sopchoppy Elementary School are as follows:
1. Food Chains.
2. Shapes and Textures.
3. What is Water Pollution?
4. Are all Leaves Alike?
5. Project Earth.
6. Sounds.
7. Wants and Needs.
8. Autumn Colors and How They Are Formed.
9. Populations.
10. A Sight, Sound, Smell, and Experience.
11. Let's Take a Careful Look.
12. Water Pollution.
13. Becoming a Tree.
14. Things That Look Different.
15. A G E.
16. Ant Colonies.
17. How Fast Can All Ants Run?
18. Tracking Ants.
19. Ant Food.
20. Miniature Worlds.
21. My Favorite Things.
22. Change.

Procedures for Evaluation:
1. After having had experiences in field laboratory study, the child will be able to identify at least the common types of plant and animal life.
2. On site visitation of laboratory for observable changes in attitudes, awareness and behavior.
3. The number of persons involved and the degree (activities) of involvement.

-G. B. Bonner

PROGRAM TITLE: INTERDISCIPLINARY ENVIRONMENTAL EDUCATION K-12

DIRECTOR: John Arena, 3600 S. W. College Avenue, Fort Lauderdale, Florida 33314.

ERIC DOCUMENTS:
1. Guidelines for Curriculum Development and Environmental Education K-12. Part I, Concepts, Ideas, Objectives and Principles. ED 068 325
2. Ecky Says, "Brush Up On Your Ecology." ED 085 223
3. My Most Important Friend. ED 085 224
4. A Trip to the Water Plant. ED 085 225
5. A Teacher's Guide to the Study of Ecological Terms for Intermediate and Middle Schools. ED 085 226
6. A Teacher's Guide to the Study of Water for Primary Youngsters. ED 085 227
7. The ABC's of Water. ED 085 228
8. Water and Something Else. ED 085 229
9. Coco Nut Meets the Gadget Maker, Volume I. ED 085 230

PROGRAM TITLE: GREENHOUSE

DIRECTOR: Leslie F. Jones, P.O. Box 216, Gretna, Florida 32332. (305)856-5249

A. Objectives:
    1. To teach students the value and beauty that shrubbery adds to a building site.
    2. To teach carry-over values for later life.
    3. To develop a good basic knowledge in the areas of:
        a. rooting
        b. transplanting
        c. landscaping
        d. soil composition

B. History of Program:
The State Environmental Program was brought to my attention during a meeting held by a district staff member. As a direct outcome of the meeting, and with the help of resources people and my staff, I wrote the Greenhouse Project. This project was submitted to the State Department of Education Environmental Education Program. The total program was only partially funded. Consequently the project is not is operation at present. The project has been resubmitted to the State Department of Education for full funding with a few modifications.

Our project is not in operation. Only 17% of the total money needed has been allocated.

C. Future Plans:
The Greenhouse Project will be a continuous program. The extent of involvement will be determined by the amount of success the previous year. We hope to involve the community and instill a pride for their community environment.

-L. F. Jones

PROGRAM TITLE: ESTUARINE ECOLOGY - A FIELD TRIP GUIDE - THIRD EDITION

DIRECTOR: John H. Headlee, Coordinator, Environmental Education, Citrus County Schools, 1507 West Main, Inverness, Florida 32650. (904)726-2490

I. Objective:
To provide middle school students visiting the Marine Science Station at Crystal River, Florida, with a handbook of on-site activities and a simple identification guide.

II. History of program:
In 1967, this writer presented the need for a student handbook-field guide to the director of the Marine Science Station during a teacher workshop at the station. In 1970-72, this writer and personnel at the station further discussed the increasingly pressing need for a structured middle school summer program for the station centering around a student handbook-field guide, but no one found time to develop the item. In the spring of 1972, this writer developed and produced (in rough draft form) enough copies of the first edition for use by the middle school students attending the station that summer. After using the first edition, the station personnel were even more impressed with the need and contributed materials for the production of the second

edition (also in rough draft form) for the students attending during the summer of 1973. This writer used some of their illustrations, at this time, to develop an attractive cover for the books. Due to several requests for copies of the guide and the use of the guide in a local high school science course, this writer submitted a project proposal to the state and was partially funded for developing a more finished third edition.

The first two drafts have considerable errors and several gaps. The third edition should be a more finished product.

-J. H. Headlee

PROGRAM TITLE: GUIDE TO LOCAL FIELD TRIPS, RESOURCE PEOPLE, AND MATERIALS FOR ENVIRONMENTAL EDUCATION

DIRECTOR: John H. Headlee, Coordinator, Environmental Education, Citrus County Schools, 1507 West Main, Inverness, Florida 32650. (904)726-2490

OBJECTIVE

To provide teachers with a list of local field trip possibilities, local resource people, and local materials available for environmental education.

HISTORY

From studying the limited field trip choices made by teachers and from informal discussions with teachers in the county, a critical need for a wider range of closer options and information about those options became apparent to the author during the spring of 1972. After some initial research on some of the available options, several of those selected proved to be poor for field studies; therefore, the author began constructing a list of resource persons to entirely replace those field trip options. Additional resource people were listed to supplement, and sometimes to participate in the better field trip options. The author then developed a structure of environmental education concepts and keyed them to the field trips and resource people. A general set of slides was developed concurrently with the guide.

Now, in the fall of 1974, the guide is being updated and a list of local available materials is being added. This step is in fulfillment of a state-funded project proposed by the author in January 1974.

PRESENT ACTIVITIES

Presently, the author is (1) assisting teachers and principals in writing environmental education project proposals for their schools, (2) implementing the ecology-oriented life science portion of the science curriculum improvement study in grades one through six, (3) developing and initiating a locally-designed college-credit course in ecology for teachers, (4) writing additional project proposals including one on the development of pre-trip slide sets for each major field trip option and semi-programmed units for student-use on a few selected field studies, and supervising the local county use of the Marine Science Station at Crystal River, Florida.

PROBLEMS
Original document does not nearly cover the wide range of locally available field trip possibilities.

SOLUTION
We are still adding to it, periodically, from teacher suggestions and additional research.

-J. H. Headlee

PROGRAM TITLE: ENVIRONMENTAL AWARENESS COOPERATIVE (EAC)

DIRECTOR: Buren L. Dunavant, Deputy Superintendent, 75 S. W. 6th Street, Lake Butler, Florida 32054. (904)496-2260

Environmental awareness was greatly increased in the high school science curriculum three years ago both in regular subject areas and in a slide presentation of local environment by a small group of twelfth grade students with special interests in this area and in photography. The science teacher and the department chairman in particular, as well as selected elementary teachers, began attending environmental workshops and seminars, and reading and writing environmentally related materials. Projects were written for funding the activities and employing teachers to develop mini-lessons. Selected students participated in a STEP (Students Toward Environmental Participation) conference and later conducted high school classes for a week using procedures they had learned.

Our present activities include:

1. Mini-lessons which are being field tested in our schools. Copies have been requested by other school districts. An in-service, county-wide workshop was held to give all teachers a "heads-on" introduction to some of the units.
2. As planned in our project, high school student helpers work with students in grades K-3.
3. Much use has been made of a citizens committee for environmental education. In fact the Owen Illinois Company loaned their camp site for the in-service workshop.

Promoting environmental education is no different from other things. Our first problem was selling environmental education to the principals and teachers. The Union County School district only has three schools. The Middle School group (grades 4-8) did not desire to participate in the Project proposal. This problem has been resolved and the Middle School, under a new administration, is anxious to involve his teachers.

Problem number two: our proposal to the state was only partially funded due to the lack of available funds. New proposals are being submitted to the state this year and due to additional funding by the State Legislature we anticipate having adequate funds to complete our objectives.

A third problem is time. Teachers are over-burdened and to add anything new is a task. We can report, however, that progress has been made and interest is catching on.

As mentioned above, new proposals have been made to the state for funding.

Two of our local teachers will be used as facilitators in a four-county teacher workshop and four of our local students will be used to conduct a STEP Conference for students and teachers of neighboring counties. Four of our high school students are, and will continue to be, used as leaders of K-3 students, on a one to six ratio. Filmstrip and film loops are to be developed.

As previously mentioned, mini-lessons have been produced and teachers in grades K-3 and 9-12 are presently field-testing this material.. Plans are to revise, and add to these materials as needed.

-B. L. Dunavant

PROGRAM TITLE: AN ENVIRONMENTAL STUDY OF LAKE OKEECHOBEE

DIRECTOR: C. W. Holder, Principal, Okeechobee High School, Rt. 2, Box 75, Okeechobee, Florida 3347?. (813)763-3191

An Environmental Science course has been established at Okeechobee High School for the 1974-75 school year. The purpose of the course is to give the students practical experience in ecological studies. Several of the students enrolled in the class attended a six-week course in environmental studies at the Florida Institute of Technology this past summer and are knowledgeable in the type of testing required for carrying out an environmental study of Lake Okeechobee.

Lake Okeechobee is the heart of the Everglades. The lake provides all of the water for the Everglades, except for a minimal amount of rainfall. In recent years, Lake Okeechobee has begun to show signs of eutrophication. This eutrophication is due partly to the artificial containment of the lake, partly to the channelization programs of certain streams (the Kissimmee River in particular) which do not allow sufficient stream mileage for stream self-purification from pollutants introduced upstream, and partly to runoff from the highly agricultureal regions surrounding the lake. This eutrophication process if allowed to continue could result in the complete destruction of the lake and thereby, the Everglades, which is perhaps Florida's greatest natural resource. The environmental program in this district is being used to monitor areas of the lake and surrounding streams. Monitoring is in the form of chemical tests, bioliogical tests, and observation. Chemical tests include dissolved oxygen, pH, carbon dioxide, nitrates and phosphates. Biological tests include B.O.D., coliform counts, and examination of other organisms indicative of pollution and eutrophication.

Comparison of results obtained with findings of the Florida Flood Control District are being made to judge the adequacy of testing techniques.

Students are used, after proper instruction, to monitor the study area and interpret the obtained data. Students thereby become aware of environmental problems, environmental methods, and hopefully arrive at solutions to these problems.

Objectives:
1. Selected students, assisted by instructional personnel and contributing agencies, will develop an environmental curriculum specifically oriented to local environmental problems. This curriculum will be written in performance terms.
2. Students will gain practical experience in scientific monitoring by gathering data related to the present environmental condition of Lake Okeechobee.

Evaulation procedures:
1. Students will collect statistical data from available resource agencies to substantiate the degree of severity of environmental difficulties.
2. Students will receive training in ecological field research techniques.
3. Upon completion of the objective above and with the recommendation of the Okeechobee High School Science Department, the curriculum will be submitted to the Board of Public Instruction for its approval as a portion of the Okeechobee High School Science Department Curriculum.

-John T. Ensminger
Environmental Science Teacher

PROGRAM TITLE: ENVIRONMENTAL EDUCATION PROJECT

DIRECTOR: Charles R. Sheppard, P.O. Box 271, 434 N. Tampa Avenue, Orlando, Florida 32803. (305)628-0995

Prior to 1974 there was no environmental education curriculum in the elementary schools. Conservation education and general science in the elementary school was/is taught with mention towards conservation of our natural resources. Recognizing the need for emphasis on this curriculum, the State legislature mandated that environmental issues will be included in the general curriculum of the Florida schools.

The Junior League of Orlando approached the science and social studies supervisors concerning an interest in implementing an environmental education project in Orange County schools. After many months of planning, the League voted to enter into a three year project and fund the project to the amount of $31,000. Expenditures will include any necessary funds ($1,500) to provide a facility and to partially fund the salary of an environmental education teacher. The project is to be reviewed each year and evaluated as to its merit and the desire to continue.

A Nature Center was opened on October 8, 1973 in Mead Gardens, Winter Park, Florida. The City of Winter Park agreed to the use of a facility (a building) and the Gardens for a period of one year. The building serves as a work center and laboratory for staff and students.

The Project has a staff that consists of one environmental education teacher and one environmental aide. At present Mr. Charles Sheppard serves as the project teacher. A volunteer staff of ten League members serve as instructors to the Center on an alternating schedule.

Through previous contacts and scheduling, one class per day may come to the Center for a full day class. Transportation is provided by Orange County school buses. The class is divided into three groups. Each group has an instructor. Students are under supervision at all times. A liability policy is provided on students and staff. Students being their lunches. All schools are called to confirm their appointment. At the close of the school day, June 5, 1974 every school (with one exception) participated in the Center program or the in-school program (which was due to the energy crisis). The number served in the Center was 1,956. The number served by the in-school program was 3,110.

In order to evaluate the Project, an evaluation form for either of the two programs was provided for the teacher. The response was overwhelming in lauding the program with unanimous approval for the continuation and expansion. The requests for additional days had to be turned down due to heavy prior commitments. The in-school program specifically endorsed the purchase of animals for the classroom program. The teacher evaluation indicated that the program correlated with their curriculum plans and met the state standards. Many letters were received from students who gave many helpful hints and praise for the program.

The Project was awarded the Walt Disney Community Service Award in Environmental Science ($1,000). The State Department, Bureau of Environmental Education, awarded a $3,000 grant to implement more projects associated with the League Project.

ENVIRONMENTAL EDUCATION STATUS IN ORANGE COUNTY

Past
1. $30,000 NSF Grant - Train teachers in Fresh Water Biology and Ecology.
2. Writing team - Ecology Guide (10-12)
3. NSF Institute - Social Studies/Science - 60 teachers. Produced 15 video tapes, 30 LAP's.
4. Writing teams - Interdisciplinary 25 LAP's (5-6-7).

Present
1. TV films/tapes in production
2. Nature Center - Junior League
3. In-School program - Junior League
4. Participating in Conservation Foundation "Case Study" evaluation.
5. Participating in STEPS program in Orange County - State
6. Youth Conservation Project - 14 girls, Ocala Forest
7. NSF Institute - 40 participants produced 20 slide/tape/script programs
8. Community Cultural Fair
9. Prepared one environmental display case for libraries and schools
10. In-service NSF Institute - Geology/Geography (science and social studies teachers)

Future Goals
1. Implement McCoy Air Force Base property into environmental center
2. Develop Weikiva Center with Orange County Schools
3. Develop on-campus field trips
4. Produce newsletter
5. Prepare suitcase exhibits
6. Implement student/teacher projects
7. Two workshops.
8. Week Environmental Camp
9. Summer program for gifted students.

-C. R. Sheppard

PROGRAM TITLE: PUSH

DIRECTOR: Edward J. Markel, Holmes Boulevard, St. Augustine, Florida 32084. (904)824-1234

Objective of PUSH is to provide environmental education for all students under the jurisdiction of the St. Johns County School Board. The program will encompass a county population of over 30,000 with 7500 students and 450 teachers.

The program started for K-4, adult school, science courses 8-12, with outdoor sites selected for all schools. Materials incorporated into the program are from the Florida State Department of Environmental Education, plus Lee, Broward, and Duval Counties of Florida and Omaha, Nebraska.

Our main problem concerns teachers being lost in outdoor activity. We have held these outdoor workshops which have been very successful.

We project outdoor teacher workshops for K-12, curriculum development 5-8, disciplines outside of Science 9-12, and outdoor site developments evaluation for over-all programs.

A K-4 curriculum has been developed. It has been evaluated by the Garden Club Committee, State Consultant and the State Department. Copies may be secured from St. Johns County School Board for $2.50.

-E. J. Markel

PROGRAM TITLE: DEVELOPMENT OF ENVIRONMENTAL EDUCATION EXCURSIONS

DIRECTOR: Floyd H. Clark, Coordinator of Science, Highlands County, Third Floor, Courthouse, Sebring, Florida 33870. (813)385-5161

A. Objectives:
   1. To develop an environmental education program during a four-year period for grade levels K-6. Fifteen to twenty environmental excursions will be developed per grade level plus some audio-visual materials.
   2. To provide an in-service workshop designed to train teachers in the use of the materials developed.

B. History and Current Activities:
   Florida passed an Environmental Education Act in 1973 establishing an environmental education program which provided that each school district school board may submit a proposed program designed to effectuate an execplary environmental education project in the district. This became commonly known

as a Department of Education Environmental Education mini-grant program. Highlands County (District) proposal was submitted in January 1974, approved in February and the first draft of Environmental Education Excursions, A Guide 4 Teachers was completed in June 1974.

A two-day workshop was held in August 1974 for fourth grade teachers to familiarize them with the Guide. It is presently being used at the fourth grade level in elementary schools in the county. Plans are to revise this fourth grade Guide and develop two additional Guides, a third grade and a fifth grade, during the school year 1974-75. During the following three years Guides for K, 1, 2, and 6 will be developed, revised and incorporated into the county's elementary school educational program.

C. Problems Encountered and Solutions:
Our biggest problem was getting the project funded early enough in the school year. The writing team worked overtime to get the first fourth grade draft completed by June. Indications are that future projects will be approved by November instead of February. This should provide the writing team with sufficient time to write up and class test the activities recommended in the Guides.

D. Future Plans:

School Year	First Draft Guides	In-service Training and Revision of Guides In
1974-75	Grades 3 & 5	4
1975-76	Grade 6	3 & 5
1976-77	Grades K, 1 & 2	6
1977-78	None	K, 1 & 2

E. Publications:
A fifty page guide titled "Environmental Education Excursions, A Guide 4 Teachers".

-F. H. Clark

PROGRAM TITLE: ENVIRONMENTAL EDUCATION PROGRAM, FLORIDA DEPARTMENT OF EDUCATION

DIRECTOR: C. Richard Tillis, Chief, Bureau of Environmental Education, State Department of Education, Knott Building, Tallahassee, Florida 32304. (904)488-6547

ERIC DOCUMENTS:
1. Florida Master Plan and Action Guide for Environmental Education. Reprint, with Florida Mini-Grant Program Appended. ED 092 372

2. Strategies for Multidisciplinary Environmental Education.
ED 092 373
3. Multidisciplinary Environmental Education Activities.
ED 092 374

PROGRAM TITLE: SCREAM

DIRECTOR: Anita Gayle Hocker, Venice Junior High School, Venice, Florida 33595. (813)448-7728

Provisions of the program plan:

1. The Sarasota South County Environmental Council is composed of school administrators, local officials, teachers for various grade levels, students, citizens representing various community interests, and concerned citizen groups. An Environmental Council Coordinator implements the organization of the Council with the establishment of sub-committees, maintains an office to facilitate communication on activities of the Council and serves as a laison between the schools and the Council.
2. Provision for Environmental Curriculum Specialists at the Elementary, Junior High School and Senior High School level, to substantially increase environmental education in all disciplines and grades.
3. Development of Action-Oriented Models for Community Problem Solving in Areas of Environmental Concern: Two advisors assist in designing action oriented models for community problem solving. A minimum of 40 students are given projects for school credit which involve them with data collection and all other steps in the model for solving a specific community problem.
4. Production of Information on Local Environmental Issues: Each sub-committee of the Environmental Council is assigned the development of a booklet of information on their area. This includes a description of the local community in the particular area, a list of problems that the sub-committee has cited in their area in terms of priorities of need and practibility of solving, reports on activities of the action oriented models conducted through the year, and a list of recommendations for further consideration by the Environmental Council and the community at large.
5. Implementation of Workshops and Public Seminars: A series of discussions on specific areas of concern to the Environmental Council will be held after the business sections of the monthly Environmental Council meetings. This program concentrates on a presentation and discussion of existing water, waste water and solid waste disposal facilities. Also included are discussions on planning future facilities and additional methodologies to come with the demands of a rapidly increasing population. Field seminars are scheduled at Myakka or Oscar Scherer State Park as a nature and park appreciation function and to stimulate greater use of public lands.

History:
1. A State Environmental Education grant for use in developing field packets in Environmental Education was received in March 1974; completed twelve guides, slide presentations, A.V. Environmental Education Catalog, and a Teacher's Guide to Environmental Education Field Activities. Amount of grant was $2500; period ended November 1974.
2. Wrote Federal grant application with the aid of eight teachers who were interested in starting a comprehensive environmental education program.

Problems encountered:
The businessmen and political leaders in the area did not attend the environmental meeting as was anticipated. We are going to make more personal contacts to promote their attendance in the future.

Future plans:
We expect to carry out the program as outlined and encourage our local school board to institute a permanent environmental education program.

-A. Hocker

PROGRAM TITLE: PINE JOG ENVIRONMENTAL SCIENCES CENTER

DIRECTOR: Dr. Ray M. Iverson, 6301 Summit Boulevard, West Palm Beach, Florida 33406. (305)686-6600

Objectives:
1. An increase in student and teacher knowledge of their natural environment.
2. An increase in student and teacher awareness of the environment as an enriching part of human existence.
3. A better understanding of the impact of humans on the environment.
4. An improvement in student ability to observe, measure, and evaluate the relationship of the natural environment to their own lives.
5. As a result of the above, a society with increased appreciation of the natural environment, be it in South Florida or some other part of the World, so that the environment may receive some protection from thoughtless destruction at the hand of man.

To meet these objectives, a plan of action was devised:
1. A program for third graders which includes approximately 1,440 students.
2. The fifth grade program to meet the demands of some 6,500 students.

3. A seventh grade program serving some 2,800 junior high school students.
4. A program for high school students, marine biology, which includes 1,013 students within the county.
5. Pine Jog Center makes available to all schools resource materials and assistance for developing nature areas and provides them with modules on ecology for the schoolyard and home.
6. In addition to the above, Pine Jog serves some 5,000 other children. These include other grades plus community groups.
7. A series of evening courses dealing with the environment was started for adults.
8. Speakers from the staff are provided for community groups.

History:
Mr. and Mrs. Alfred G. Kay started Pine Jog Nature Center as a private nature center in 1960. It became part of Florida Atlantic University in 1970 and is supported by a combination of private donations, county school board funds, and state funds through Florida Atlantic University.

Our main problem encountered thus far has been availability of busing for all of our programs.

We intend to continue offering environmental education to Palm Beach County students. With expanded programs, all third, fifth, seventh, and marine biology students would participate in our environmental programs.

Serving the student in a less direct way, Pine Jog would develop optional environmental education materials for use by the schools at all levels. These would include materials for student use, such as information booklets, semi-programmed individual investigations, games, problems, puzzles, and experiments, all related to our subtropical environment. Audio-visual and descriptive materials would be available for circulation on a loan basis: slide/tape programs, puppet shows, habitat diagrams, films, and written materials.

A series of workshops, seminars, and short courses to cover environmental problems and suggest a variety of specific tools for environmental education at each age are being offered and will continue to be offered.

Individual inquiries welcomed.

-R. M. Iverson

PROGRAM TITLE: LIFE ON GUAM

DIRECTOR: Dave Hotaling, Consultant's Office, O'Hara Street,
Agana, Guam 96910. 772-8553

Across the world--in mainland United States, Africa, Japan--people's severest problems stem from environmental degradation. Not only is Guam not equipped with special immunity, it is especially vulnerable. How our limited land and other resources will have been allocated and used by 1985, when our population reaches an expected 200,000, will depend largely upon the students who are in Guam's schools today.

Two kinds of action are required: one is the immediate action which must be taken by leaders on Guam to increase conservation measures and to reduce the present levels of pollution. Steps are being taken in this direction, and some examples would be the recent establishment of an Environmental Protection Agency; the designation of land for conservation areas; the Navy's plan for reforestation of their badly-eroded land; and the establishment of the Legislative Committee on Ecology and Environmental Protection. The second type of required action is embodied in this proposal and is concerned with education. Education, at whatever levels, is absolutely required if ever man is to enter into balance with his environment. Five separate studies in the past five years have urgently recommended the development of environmental education specifically for Guam. Also, Island biology teachers have long recognized the need for ecology-teaching materials relevant to Guam but none have been able to devote the substantial amount of time necessary to develop such materials.

With these two needs in mind, it is this proposal's objective to establish and integrate a locally developed environmental education program in the secondary schools of Guam. Traditionally, conservation education has been concerned mainly with the wise use of natural resources. This proposal included man as an integral element of his environment, and considers all of the human resources (physical, cultural, and economic) which depend upon it.

A two-year curriculum including field experiences will be devised on a conceptual and grade basis. The units will be integrated into the existing science and social studies curricula in Junior High and Senior High as a pilot situation. Local media will be developed to supplement the units. A method of evaluation of the project and curriculum guides will be devised. Finally, an in-service program at the local university on the ecology of Guam will be offered for teachers, in the Spring and Summer sessions 1975, and thereafter as deemed appropriate.

It should be noted here that Guam has a unique situation vis-a-vis the problems of conservation. The geology, flora and fauna of the island, and the educational, cultural, and economic bases of the local community are quite distinct from those anywhere else. Traditional conservation education techniques used in other schools are not what the situation on Guam requires. This project proposal is truly innovative in that it provides for the local production of ecology materials specifically for the Island of Guam.

-D. Hotaling

PROGRAM TITLE: THE HAWAII NATURE STUDY PROGRAM

DIRECTOR: Sister Edna L. Demanche, University Laboratory School, 1776 University Avenue, Honolulu, Hawaii 96822.

Description:
The Hawaii Nature Study Program is a laboratory and field oriented course for elementary students. The focus of study is knowledge about the plant and animal life and the physical components of the Hawaiian environment, and their ecological relationships. The program promotes student on-site observation, experimentation, discussion, production of ideas, and learning by experience.

The Hawaii Nature Study Program fits within the science curriculum. The activities can be correlated with the overall science program, with other areas of the curriculum, and with local community events and interests. The program, particularly in the skills it develops, prepares students for science in the intermediate school.

The Nature Study activities are grouped according to general topic or subject. The first packet is a series on Parts of Plants. Other groups of activities in preparation are: Insects and Other Animals, Weather and Climate in Hawaii, Reef and Shore, Identification of Campus Plants, and other general topics not yet designed.

Teacher Materials:
The printed materials are intended for use by classroom teachers. The development of each activity and investigation provides the teacher with value and goal statements, a brief outline of a suggested procedure followed by more detailed presentation of useful procedures, informational background for teachers, master copies of diagrams which can be made into transparencies as desired, and tasks and challenges in 3 x 5 card size which can be duplicated to give to individual students or to small groups as supplementary work.

Student Working Materials:
Each student keeps his own notebook of records and reports of his investigations. Information comes chiefly from work in the laboratory, i.e. the school campus and the environment of Hawaii. Equipment needs are minimal; nearly all are of the kitchen and dime store variety.

Student Reference Materials:
Eventually the Hawaii Nature Study Program will have student and classroom reference materials. Meanwhile, this role is served by "Exploring Nature in Hawaii" available in Volumes 1 to 8 from the Catholic School Department of Hawaii, Box 1247, Kaneohe, Hawaii 96744. $13.75 per set of 8 volumes.

Grade Levels:
Hawaii Nature Study activities and investigations are designed for use in Kindergarten through Grade 6. Each topic is presented at three Bands or levels. Teachers are encouraged to choose whichever Band materials seem best suited for their grade or situation.

Band 1 activities and procedures are for very young and inexperienced pre-readers and writers. These are useful in the primary classes but could be used or adapted for older children with learning disabilities.

Band 2 activities are suitable for young students who are beginning to read and write independently, such as average 3rd and 4th graders, precocious youngsters in earlier classes, or inexperienced older groups.

Band 3 activities and procedures make demands on students (5th and 6th graders) who are expected to think through and carry out investigations at a young scholarly level.

The Longitudinal Report:
Because each teacher has a side choice in selecting topics, investigations, and Band levels, it is helpful for succeeding teachers to be informed of what topics a given class has been exposed to in its passage from grade to grade. A Longitudinal Record showing each year's accomplishments accompanies each class from Kindergarten through 6th grade.

Pilot Teachers:
The success which Hawaii Nature Study has enjoyed thus far is due in large measure to pilot teachers who volunteered to try the rough drafts of the activities in working classroom situations, and who reported results and made practical suggestions at area meetings. Additional teachers have volunteered to join the pilot group for the 1974-75 school year. These teachers will help to refine this series and test rough drafts of the new topics now being designed.

Teachers interested in becoming part of this active group may contact the Hawaii Nature Study Project Director.

-Sister Edna L. Demanche

PROGRAM TITLE: ROBIE CREEK ENVIRONMENTAL TOUR

DIRECTOR: Sam Stimple, Jefferson School, 200 South Latah, Boise, Idaho 83705.

Program has been discontinued.

PROGRAM TITLE: OPERATION SURVIVAL THROUGH ENVIRONMENTAL EDUCATION

DIRECTOR: Ray E. Miller, Pere Marquette State Park, Grafton, Illinois 62037.

ERIC DOCUMENTS:

1. *Environment, Teacher Manual, Primary, Idea I, Land.* ED 067 241
2. *Environment, Teacher Manual, Intermediate, Idea I, Land.* ED 067 242
3. *Environment, Teacher Manual, Junior High, Idea I, Land.* ED 067 243
4. *Environment, Teacher Manual, Senior High, Idea I, Land.* ED 067 244
5. *Environment, Teacher Manual, Primary, Idea II, Air.* ED 067 245
6. *Environment, Teacher Manual, Intermediate, Idea II, Air.* ED 067 246
7. *Environment, Teacher Manual, Primary, Idea 3, Water.* ED 070 680
8. *Environment, Teacher Manual, Intermediate, Idea 3, Water.* ED 070 681

PROGRAM TITLE: CREATION

DIRECTOR: Dr. Richard J. Jackson, (Title III, ESEA Through OSPI, Springfield, Illinois), CREATION - La Salle-Peru Township High, Fifth at Chartres Street, La Salle, Illinois 61301. (815)223-5715

A. CREATION Objectives
   1. Given two months, the Project Director, in conjunction with the CREATION Staff will have developed guidelines for the planning year. The CREATION Staff will consist of a Project Director, two teachers, one from the social sciences and one from the natural sciences, and an audio-visual technologist.
   2. Given three months, the Project Director will have established an Advisory Committee consisting of representatives of teachers, students, parents, and the community.

3. Given six months, the CREATION Staff, after considering the recommendations of the Advisory Committee, will have compiled a list of socio-technological problems feasible to teach and of interest to the local area.
4. Given twelve months, the CREATION Staff will study, develop, and evaluate methodologies for teaching the identified, socio-technological problems.
5. Given twelve months, the CREATION Staff, selecting one of the socio-technological problems identified earlier, will develop a procedural model to be used in attacking other problems.
6. Given twelve months, the Project Director will arrange to obtain evaluation instruments for determining student baseline, progress, and outcome data in the following areas:
   a. Critical thinking skills, i.e., Watson-Glaser Critical Thinking Appraisal;
   b. Awareness of environmental problems, agencies deal-with these problems, and the interaction between these two areas;
   c. Attitudes toward environmental problems, agencies dealing with these problems, and the interaction between these two areas;
   d. Concept of self as an agent for change.
7. Given nine and one-half months, the Project Director will select a pilot group and a control group of students for use in the pilot year.
8. During the 1974-75 school year, the following groups will receive information from and provide feedback to the CREATION Staff:
   a. Science and social science teachers;
   b. Counseling staff;
   c. Entire teaching staff;
   d. Advisory committee.
9. During the twelve month planning year, the Project Director, with the CREATION Staff, will be responsible for preparing and disseminating reports about CREATION within the local area.
10. Given twelve months, the CREATION Staff will develop methods for dissemination of information about CREATION to be used during the pilot year.

B. The proposal was developed from the felt needs of local school staff. It was perceived that an individualized, team-taught, interdisciplinary approach to local environmental problems would be relevant to the needs of a high school population. It was further perceived that such an offering could best be presented only after a thorough planning year. We are in the midst of that planning period now.

C. We are in the process of developing materials and are beginning to work with local environmental organizations.

D. Our problems have all been theoretical and as a result we have credited ourselves with developing successful solutions. We have not field tested any solutions yet.

E. Other than a newsletter we have not produced any publications to date. We are in the process of editing video tapes, audio tapes, slides, and other forms of media to document a team teaching dimension, the individualized aspect, and our interdisciplinary approach.

-R. J. Jackson

PROGRAM TITLE: POLLUTION CONTROL CENTER

DIRECTOR: Edward C. Radatz, Oak Park River Forest High School,
201 N. Scoville Avenue, Oak Park, Illinois 60302.
(312)383-0700 Ext. 561

The 1970 Conservation Workshop

After participating in environmental workshops at Southern Illinois University in 1969 and 1970, two student chairmen cooperated with faculty and administrators to plan the 1970 Conservation Workshop at Oak Park and River Forest High School in observance of the first Earth Day. The workshop brought together conservationists, scientists, educators, and industry representatives in order to educate the students, faculty, and community to pollution problems and ecological concepts.

After the administration agreed to re-schedule school classes for the entire week, students selected and contacted speakers who talked to history, science, and English classes on separate days. Each class heard speakers relating to a subject so that teachers and students recognized the broad applications of environment to all subjects. For example, Attorney Joseph Karaganis, assistant to the Attorney General, spoke to history classes concerning environmental legislation, Mrs. Samuel Rome of the President's Environmental Board spoke to science classes regarding technical aspects of water pollution, and Mr. Gunnar Peterson from the Open Lands Project talked to English classes about ecological concepts and personal lifestyles. In addition, all classes heard representatives from industry in order to add perspective to industrial pollution projects. Over 4000 students, faculty, and citizens heard several of these lectures during the week.

The Environmental Science Curriculum

As a result of the workshop, many students and teachers at Oak Park and River Forest High School realized the need for environmental education in the school and community. Along with several faculty members, the students suggested an environmental science curriculum and interdisciplinary environmental study to the board of education. As a result, many students now receive environmental science, field biology, earth science, physical science, biology, and AP honors courses in science.

Independent Student Research

Thanks to the many ecologically oriented classes now offered, many students go into depth research on their own, utilizing existing Pollution Control Center files and library resources.

In addition, Pollution Control Center has sponsored, or gotten other organizations to sponsor, students to special ecology workshops like those at SIU and NIU during summers. In addition, many students have been excused from classes to attend hearings, such as those on the Lake Michigan Bill of Rights, the OSPI's master plan for environmental education, and the Illinois Pollution Control Board, to name a few.

Three students and a faculty advisor attended an environmental cruise through the inland waterways of Illinois. Having found it very informative, a second cruise for the spring of 1974 was organized in which 90 faculty members and students participated. Starting at the Wendella Docks at the base of the Wrigley Building, the trip continued through the Chicago River across Lake Michigan into Lake Calumet Harbor. From there we passed successively through the Little Calumet River, the Cal-Sag Channel, the Sanitary and Ship Canal, the South Branch of the Chicago River and back to the Wrigley Building. On board were representatives from the Metropolitan Sanitary District, Region V USEPA, and the Chicago Department of Environmental Control who called to our attention points of interest along the way.

-E. C. Radatz

PROGRAM TITLE: TAFT FIELD CAMPUS, NORTHERN ILLINOIS UNIVERSITY

DIRECTOR: Malcolm Swan, Taft Field Campus, Oregon, Illinois. 61061.

ERIC DOCUMENTS:
1. Planning for Resident Outdoor Education. Occasional Paper No. VIII. ED 071 811
2. Backgrounds of Outdoor Education. A Review of Early Studies in Camping as Education. Occasional Paper No. IX. ED 072 882
3. Leaders in Outdoor Education, 1971. ED 076 276
4. Teens Make the Environmental Scene. Occasional Paper No. VI. ED 086 413

PROGRAM TITLE: ENVIRONMENTAL STUDIES AREA

DIRECTOR: Terry Tichenor, Gibson Southern High School, Fort Branch, Indiana 47648. (812)753-3011

The weed patch west of the new Gibson Southern High School may appear to be a neglected part of the school's total landscape. In reality, this section of land is being developed under the direction of the school's agriculture and biology departments in cooperation with the Soil Conservation Service and other state conservation departments. The efforts of students, teachers, administrators, and the public in association with these institutions will result in an outdoor laboratory. This laboratory will include a wildlife conservation area complete with native trees and other flora conducive to the support of an abundant population of birds, rabbits and other wildlife.

A portion of the Environmental Studies Area will be used for crop rotation including: wheat, corn, beans, etc., thus affording supplemental food and cover for wildlife as well as food production for the human population.

It is hoped that this area will become a showcase for everyone to see how conservation and agriculture can blend harmoniously into one productive system. This system, known as an ecosystem, is a small example of the world ecosystem on which we all depend for life.

Outdoor laboratories afford an opportunity for students, teachers, and the public to become aware of the many ecological relationships that exist in a natural environment. The basic plan for Gibson Southern's Environmental Studies Area is in two phases: phase I of the basic plan will go into effect this fall when the north end of the area will be planted in wheat through the efforts of the agriculture department of the school. The south end of the area will be mowed off into study blocks which will be utilized by the biology department for ecological studies.

Phase II of the basic plan will go into effect next spring when the Soil Conservation Service and other state agencies will aid in the planting of native trees and other plants which will support wildlife populations and make for a better watershed. This entire area will include approximately five acres of land.

The advanced biology class is engaged in an aluminum can recycling program to gain funds to help maintain and develop the wildlife section of the Environmental Studies Area.

-T. Tichenor

PROGRAM TITLE: ENVIRONMENTAL EDUCATION, INDIANA STATE DEPARTMENT OF PUBLIC INSTRUCTION

DIRECTOR: Joe E. Wright, Environmental Education Consultant, Division of Curriculum, State Department of Public Instruction, 10th Floor, 120 W. Market Street, Indianapolis, Indiana 46204. (317)633-4576 Ext. 9H

ERIC DOCUMENTS:
1. Total Environmental Education: An Open Design to Real Life Learning Experiences. ED 071 868
2. Total Environment Education. ED 093 621

PROGRAM TITLE: RESOURCE MATERIALS DEVELOPMENT: DEVELOPMENT OF MODULAR CURRICULUM UNITS FOR PRIMARY AND SECONDARY LEVEL, USING A PRAIRIE ECOSYSTEM AS FOCAL POINT FOR ENVIRONMENTAL STUDIES

DIRECTOR: Dwight R. Platt, Department of Biology, Bethel College, North Newton, Kansas 67117. (316)283-2500 Ext. 367

The project will develop, under P.L. 91-516 funding, three sets of curriculum materials, each focused on one of the following three ecosystem concepts: diversity; interdependence; cycling of matter. The objectives of each of these sets of curriculum materials will be to: 1) develop a sensitivity to and appreciation of a prairie ecosystem both as a biological system and an aesthetic resource; 2) develop an understanding of an ecological concept and its importance to the structure and function of an ecosystem; and 3) explore the multidisciplinary ramifications of these concepts, particularly those related to the structure and function of human society, the relation of human society to the ecosystems of the earth and the values of man striving for a quality life.

Each of these concepts is important to the structure and function of a prairie ecosystem and is also relevant to the structure and function of human society, to the relation of human society to the ecosystems of the earth, and to the values of man striving for a quality life. Major writing on this curriculum will be done by two biologists, an artist and a sociologist.

Each of the sets of curricular materials will be planned in modules. The central module will be an experience in a prairie ecosystem. A number of different activities will be planned to illustrate the ecological concept in field study and to promote an appreciation of aesthetic dimensions of the concept in a prairie community. These can be put together in different combinations to fit the amount of time available and the age and sophistication of the participants. Modules to be used before the field experience in each curriculum will be planned to develop an understanding of the ecological concept and to develop the attitudes of curiosity and appreciation in preparation for the field experience. A part of the preparatory materials will be a slide-tape presentation (with different audio presentations for different age groups) to help develop the concept by showing aspects of the structure and function of a prairie ecosystem that might be difficult to observe on one or a few visits to a prairie and to sharpen observational skills that will be needed on the field trip. On the field trip, students will not be shown something new but will be encouraged to view something familiar in a new way.

A number of follow-up modules will be planned in each curriculum to explore multidisciplinary ramifications of the concept to human society and human values and to reinforce an understanding of the concept. The teacher can use a single module as a follow-up or a number of modules in tandem to explore a particular relation in more depth or to explore a number of ramifications.

Different modules will be planned for different age groups in upper elementary, junior high or senior high school and will be adaptable for community education. Modules will be useable in natural science, social science and/or art classes.

History of Project:
In the spring of 1970, Bethel College sent out an invitation to all of the Unified School Districts in southcentral Kansas and a few other selected organizations to attend a meeting to discuss the possible formation of an environmental education center. At the meeting, representatives of 21 schools and organizations were in attendance and expressed needs that they felt such a center could help fill. Another meeting was held in the fall of 1970 and the Southcentral Kansas Environmental Education Center was organized to serve as a resource for area schools and organizations and a Steering Committee was elected. Steven G. Schmidt was elected Chairman of the Center. During the first two years of its existence, all support came in the form of donated facilities and gifts from affiliated organizations and interested individuals and in the voluntary labor of many individuals.

During the spring, 1970, meeting prior to the formation of the Southcentral Kansas Environmental Education Center (SKEEC), the needs expressed most strongly by these teachers and administrators were for 1) assistance and instruction of teachers, and 2) curriculum materials and field trips to develop an understanding of our natural environment as an ecosystem. SKEEC has attempted to meet this need in a limited way by encouraging elementary and high school classes to make use of the Sand Prairie Natural History Reservation, an 80-acre tract of sandy grasslands managed as a natural area by Bethel College. Bethel College faculty and students associated with SKEEC have given leadership on class field trips. However these field trips to Sand Prairie Reservation are not as effective as they could be in promoting an understanding of the environment by students because they are usually not integrated into the classroom program.

These trips are usually restricted to interpretation of the natural ecology and explanation of ecological techniques. Little attempt has been made to develop a broader multidisciplinary approach. This project is planned to expand and correct deficiencies in the program.

Activities:
1. A library of environmental books, pamphlets and clippings has been organized for use by local schools and community organizations.
2. SKEEC has been instrumental in starting some recycling projects.
3. SKEEC has organized and provided leadership for field trips on the Sand Prairie Natural History Reservation for local schools and community organizations.
4. SKEEC has provided speakers on environmental topics to various organization.
5. In 1972-73, SKEEC planned, implemented and tested a program of family workshops as a method of environmental education.
6. In 1973-74, SKEEC cooperated with the Newton Recreation Commission in developing an experimental community outdoor or natural history education program.

-D. R. Platt

PROGRAM TITLE: KENTUCKY'S ENVIRONMENTAL EDUCATION PROGRAM

DIRECTOR: Billy S. Blankenship, Capital Plaza Tower, Room 1827,
Frankfort, Kentucky 40601. (502)564-3505

Kentucky's Environmental Education Program (KEEP) consists of units that offer a beginning to school systems and teachers throughout the Commonwealth that are not actually involved in environmental education. The Department of Education developed KEEP to encourage teachers to use these materials as a model for development of their own curriculum centered around their individual school and community.

The initial materials were developed in an environmental education conference at Union College Environmental Education Center, Middlesboro, Kentucky by the Department of Education and selected teachers and administrators from throughout Kentucky. The first units developed were for grades 4-6 in Sight and Sounds and Science and were field tested in several elementary schools for one year.

In January 1974, all school principals received copies of the KEEP materials with recommendations on how the models could be utilized in curriculum development. All workshops and in-service programs this year have included the introduction and possible implementation of KEEP on the local level.

The materials are in all elementary, middle, and secondary schools in the Commonwealth. However, to what extent they are being used is uncertain at this time. Requests from school systems, civic groups, and state and federal agencies have been received from about forty states. In 1975, an evaluation of KEEP will determine if additional units will be developed.

In some schools the materials were not disseminated to the classroom teachers by the principal.

The Department of Education is planning to establish an environmental education network throughout the Commonwealth. This network would consist of designated individuals from each school system by the local superintendent. These contact people would assist in the disseminating and implementation of various environmental education projects.

The degree of success of this program cannot be determined at this time.

Future plans include the establishment of a statewide network of environmental education contact personnel for each school system by a series of leadership conferences in the spring of 1975. We will also expand the KEEP project to include a newsletter...

KEEP materials:
- "Hands on Kentucky" - Science grade level (4-6) Free
- "Hands on Kentucky"- Sights and Sounds grade level (4-6) Free
- Environmental Education (brochure) Free

-B. S. Blankenship

ERIC DOCUMENTS:
1. Science 4-6, Kentucky's Environmental Education Program. ED 093 633
2. Sights and Sounds 4-6. Kentucky's Environmental Education Program. ED 093 634

PROGRAM TITLE: LOUISIANA STATE DEPARTMENT OF EDUCATION

DIRECTOR: Edward W. Dayton, Jr., Supervisor of Science and Environmental Education, P.O. Box 44064, Baton Rouge, Louisiana 70804. (503)389-5627

As in the past, we are continuing to hold environmental education workshops in several of our colleges and universities for in-service training of teachers. In these workshops we use personnel from the State and Federal resource agencies as instructors. We have teams of resource agencies personnel located at key points in the state that assist school systems in establishing outdoor areas on school properties and who, when requested, will conduct local workshops. I feel that this is quite an accomplishment since these people do this in addition to their normal duties. This all came about from an inter-agency workshop conducted in 1972 in which we trained forty technical resource people. We are presently planning a similar workshop for April of 1975.

Superintendent Michot has recently appointed a Louisiana Environmental Education Advisory Committee to develop State Plans for the improvement of environmental education programs and to bring about greater uniformity, if necessary, through legislation; also, to develop an environmental education center on state property that has been designated for this purpose.

-E. W. Dayton, Jr.

PROGRAM TITLE: AN ENVIRONMENTAL EDUCATION WORKSHOP

DIRECTOR: Johnny Purvis, Ed. D., Caldwell Parish School Board, P.O. Box 128, Columbia, Louisiana 71418. (318)649-2689

Purposes of the Workshop

The purpose of the workshop was six fold (1) to acquaint teachers with the urgency of saving our environment; (2) to acquaint our teachers with the various state and federal agencies that would assist them in correlating environmental education concepts and skills into their particular subject areas; (3) to actually go out into the field to observe and experiment with some of the concepts and skills that are related to environmental education; (4) to explore the use of community resources for instructional purposes; (5) to further reinforce the concept of the open classroom approach to teachers; and (6) to acquaint teachers with various careers that are open to their students by the various local, state, and national agencies that are related to the preservation of our environment.

Target Population

The following groups of teachers were involved in the workshop: (1) all elementary teachers (K-6) and (2) junior and senior high teachers that teach science, art, social studies, agriculture, and home economics.

Activities

Several weeks prior to the workshop we helped each agency to secure a site that would enhance their presentation and field trip experiences. Below is a brief description of the sites selected by the various agencies for their field experiences.

> The Louisiana Wildlife and Fisheries Commission participants secured a large pond adjacent to a wooded area with a small stream flowing through it.
>
> The Louisiana Forestry Commission secured a large wooded area with a variety of trees (hardwood and softwood), plant growth, and several different landforms (creek beds, ridges, etc.).
>
> The U.S. Department of Agriculture Soil Conservation Service was able to secure a wooded hill side area that exposed various types of soils along with soil erosion problems.
>
> State Department of Education personnel initiated the two-day workshop with a short program and film on the role of education in environmental improvement and awareness.

In order to accomplish the objectives of the workshop, we divided our teachers into the following groups:

Group Number One - Teachers teaching kindergarten through third grade.
Group Number Two - Teachers teaching grades four through six.
Group Number Three - Junior and Senior High teachers teaching science, art, social studies, agriculture, and home economics.

In addition to this, each group was assigned a bus to ride during workshop activities.

During the first day of the workshop a general overview and introduction of workshop personnel was presented during the first session of the workshop. After this phase of the program each group of teachers were assigned to their groups and a schedule was given to each participant to enable them to rotate to their assigned areas. Below are the arrangements that we used in rotating the three groups of teachers to the various pre-selected field experience spots in our community.

First Session: Group 1..............Wildlife
Group 2..............Forestry
Group 3..............Soils

Second Session: Group 1..............Forestry
Group 2..............Soils
Group 3..............Wildlife

Third Session: Group 1..............Soils
Group 2..............Wildlife
Group 3..............Forestry

Wildlife and Fisheries Activities

1. Investigated several environmental habitats (land and water) and performed the following activities: analyzed how various animals and plants fit into food chains and energy cycles; discussed how plants and animals that live in the various types of habitats.
2. Investigated water quality in relation to aquatic life in a pons by obtaining water temperature, oxygen content and pH.

Forestry Activities.

1. Investigated various cross-sections of trees in order to master the whys and hows of growth patterns in trees.
2. Observed and discussed life cycles of different areas of a forest.
3. Teachers collected and used natural media (leaf stain, burnt back, etc.) to sketch and color a forest scene.
4. Collected and identified various leaves, plant stems, etc.

Agriculture Soil Conservation Activities

1. Discussed what soil is.
2. Collected, analyzed, and demonstrated the various organisms that live in the soil and why they live there.
3. Make sample profiles in order to illustrate the types of soils at various depths.
4. Check soil to determine its chemical composition.
5. Demonstrate how to use a wooden strip, a yard stick, and a small jar of water to determine the slope of a given piece of ground.

History of the Program

Prior to the opening of school, we contacted the U.S. Department of Agriculture Soil Conservation Service, the Louisiana Forestry Commission, and the Louisiana Wildlife and Fisheries Commission and asked them if they would be interested in presenting a two-day in-service program on environmental education to our teachers.

After the initial contact with these agencies, the high school supervisor, a group of teachers, and the elementary supervisor met with the representatives from the respective agencies to decide on which areas would be covered by each agency, how they would present their materials to the teachers, and the types of materials that could be given to teachers to enable them to better teach environmental education to their students.

Prior to the opening of the workshop each agency submitted a list of objectives which they hoped to accomplish during the workshop; a list of resource persons and the services that they would perform during the workshop; and materials, equipment, etc., that they would need in carrying out their particular parts on the program.

Present Activities Involving Environmental Education

A few of the environmental activities that have already grown out of this workshop include the acquisition of many different types of environmental and career education materials from the participating agencies to present materials to classes, field trips sponsored by the various agencies that participated in the workshop. However, one of the most significant activities that has grown out of this past summer's in-service program was an all day field trip for all sixth-graders in our school system involving the agencies that helped us put on the program for our teachers.

Problems Encountered During the Workshop

1. Field trips should have been scheduled on a cooler day (our workshop was in August). It would have been a good idea to schedule a workshop of this nature during a cooler time of the year.
2. Field trips should be shorter. Our field trips were about three hours long (however, we had cokes, water, etc., at each site). A workshop of this nature would probably be more effective if each agency would go over their handouts and what would be covered during the field trip in a classroom setting before going to the field trip site.

The above problems were obtained from an evaluation that each teacher completed regarding the workshop.

Plans for the Future

1. The Caldwell Parish School System has begun construction on an outdoor classroom that will include a pond and nature trail.
2. Plans are being made to further use federal, state, and local agencies that are concerned with protecting and preserving our environment to present materials to classes, serve as resource people, and to sponsor field trips for our students.

Publications

Articles concerning the Environmental Education Workshop have been and/or will be published in the following journals: Louisiana Schools, The Boardman, and L. E. A. Journal.

Evaluation

The two problems that were discussed under problems encountered during the workshop were obtained from an evaluation that was completed by the teachers that participated in the workshop.

In addition to the two previously discussed items that were mentioned by the teachers, the following items were discussed by the teachers:

1. The vast majority of the teachers indicated that the materials and information that were presented during the workshop would be helpful to them in their particular teaching areas.
2. The areas in which the materials and information concerning environmental education would be most useful are (the five that received the most votes): Science, art, social studies, reading, language arts, agriculture.
3. The vast majority of teachers stated that they would favor the development of a curriculum guide concerning environmental education.
4. Most of the teachers indicated that they were presently teaching environmental education in some form or fashion in their classrooms.
5. The vast majority of the teachers favored the development of another environmental education workshop in the near future.

-J. Purvis

PROGRAM TITLE: ENVIRONMENTAL AWARENESS THROUGH THE OUTDOOR CLASSROOM

DIRECTOR: Ray Duke, Principal, Olla Elementary School, P.O. Box 926, Olla, Louisiana 71465. (318)495-2591

Primary Goal:
The primary goal of this Title III program is to teach environmental awareness through the outdoor classroom, correlating it with as many subjects in the regular curriculum as possible.

Objectives:
The major objectives of the program are: (1) The staff and faculty will improve the existing outdoor classroom on the 15 acre site at Olla-Standard Elementary School; (2) The general administrative operation will be conducted in order to satisfy the stated objectives of the project; (3) The students in the environmental awareness program will, after the program of instruction, demonstrate a significant gain in achievement scores concerning knowledge and understanding about their environment as measured by an environmental awareness test; (4) Student participants will follow the instructional activities and be able to demonstrate a significant increase in knowledge and skills related to environmental dependence; (5) Teachers will maintain a record of usage of the outdoor classroom by date, number of student participants, time spent and educational purpose as recorded in the instructional notebook provided each teacher on the outdoor classroom activities; (6) A media center will be established; (7) An assistant director-secretary will be employed; (8) Participating teachers in the in-service program will be provided training in

knowledge and skills to provide instruction and leadership to participating students; (9) Instructional support will be provided teachers through competent consultants in related fields to serve as resource people and instructors within the project; (10) An outside evaluator will provide an objective evaluation of the project activities. This will be assessed in terms of interim on site inspection reports and a final project evaluation report.

Activities:
1. The faculty and staff will work with the community to develop a nature trail, a stocked pond, a campsite, a soil monolith, a pavilion, and an awareness media center.
2. The director will provide a management model in performance objective form for all staff and faculty involved in the project.
3. Each student will be given an environmental awareness test. Significance will be tested using the t test for correlated groups.
4. Instruction will be built around twenty-four instructional objectives. Pretest scores will be gathered.
5. Teachers will maintain a record of usage of the outdoor classroom.
6. A media center will be established.
7. An assistant director-secretary will be employed.
8. An in-service program will prepare the teacher for competent instructions in the field of environmental awareness.
9. Consultants will provide competent support to the classroom teacher.
10. An outside evaluator will provide an objective evaluation of the project activities.

Unique Characteristics:
This program is unique because the outdoor classroom and media center will be available to the teacher and pupil at the teachable moment. This program is also unique because environmental education is: (1) future oriented, (2) problem focused learning, (3) a recognition of man in his environment, (4) interdisciplinary education, (5) student initiated learning, and (6) community centered.

Tests given will be environmental awareness tests using a control group, locally constructed tests using the t-test for determining correlation significance. Pre- and post-tests are planned.

The first year the project will be primarily geared toward the base school. During the second and third year, the project will be expanded to include the total project participants.

There are no evaluation findings because the program has not been in operation prior to July 1974.

Evaluation Strategy and Kinds of Tests Used:
The director, assistant director, and outside evaluator will be using several methods to test and evaluate the objectives. These will include checklists, a management model, an environmental awareness test using the t-test for correlated groups, locally constructed tests, the actual usage of the outdoor classroom, teacher attendance in the in-service program, number of consultants utilized, and analysis of outside evaluator's report.

-R. Duke

PROGRAM TITLE: CONSERVATION EDUCATION FOUNDATION OF MAINE, INC.

DIRECTOR: Lorraine L. Stubbs, Education Building, Augusta, Maine 04330. (207)289-2512

I. The principal objective of the program is to help develop citizens who have a basic understanding of our natural environment and the demands placed upon our natural resources by an increasing population. It is hoped these individuals will then make wise decisions concerning the development and use of our natural resources.

The program is multi-faceted and involves all levels of the education system from kindergarten through graduate school and adult education. The Conservation School program has three divisions, as follows:

1. college studies for in-service teachers, graduate students, and interested adults during the summer;
2. study for students in grades K-12 and pre-service teachers during the spring and fall;
3. adult education workshops during all sessions.

The courses directly involve the students by presenting the natural environment, its uses and abuses, in real situations. Resource specialists in soils, agriculture, forestry, parks and recreations, game and fish management, and outdoor education lead discussions, field trips, and problem-solving sessions.

II. The school program began in 1958 under the guidance of the Conservation Education Foundation of Maine, Inc., a non-profit organization. The Directors of the Foundation realized the need for greater citizen awareness of the natural resource problems. To help meet this need, they established the Maine Conservation School on a 200-acre tract of land in the town of Bryant Pond, Maine. The goal was to educate teachers in the conservation field so that they, in turn, could teach it more effectively in their classes. In 1960, the Directors decided that increased effectiveness could be obtained by going directly to the students through a school camp program. Since that time, program revision has resulted in introducing pre-service teachers to conservation and school camping at the same time.

III. Presently, the school offers six basic courses in conservation and environmental education, four recertification courses, and two adult education courses during the summer session.

The student program involves approximately 1,000 school students. It is a field experience program that is broad in scope and builds upon the students basic science background.

IV. The greatest problem encountered is the apathy of both students and teachers towards the natural resource management problem. To counteract this problem, we have attempted to diversify our program to cover environmental problem-solving techniques as well as conservation problems.

V. The future holds plans for program expansion in the area of teacher education. It is hoped that greater student-teacher involvement in school camping experiences will also be possible. The entire expansion program depends upon winterization of the facilities.

VI. The Conservation Education Foundation of Maine, Inc. was active on the Writing Committee for the Maine State Plan for Environmental Education and the lending library packets in environmental education prepared by the Maine Environmental Education Forum. Both of these are available from the Maine State Department of Educational and Cultural Services, Augusta, Maine 04330.

The School also has a limited supply of some curriculum materials entitled: Conservation Education Programs for Elementary Schools. These are also available from the Conservation Education Foundation of Maine, Inc., c/o Department of Educational and Cultural Services, Education Building, Augusta, Maine 04330.

-L. L. Stubbs

PROGRAM TITLE: BANGOR ENVIRONMENTAL EDUCATION PROJECT

DIRECTOR: Robert Ervin, Bangor School Department, 183 Harlow Street, Bangor, Maine 04401. (207)947-6711 Ext. 37,38

The Bangor Environmental Education Project is a kindergarten through twelfth grade program operating within the Bangor Public Schools, Bangor, Maine. Generally its emphasis is on the building of strong environmental attitudes and the solving of environmental problems associated with man's life style. More area has been designed for independent use by teachers. Techniques vary from K to 6, beginning with guided small groups to using task cards with upper elementary students.

At approximately the third grade, man's impact is introduced through field trips, slide presentations, interdisciplinary activities, and outside speakers. To the extent possible the activities are problem solving oriented and do not propose conclusions or corrections to the students. With succeeding levels studies increased in sophistication to in-depth analyses at the secondary level. The project is also involved with community-school site development projects, statewide environmental education efforts, and teacher education courses.

Materials:
The Project has adopted the instructional materials of other state and national projects while developing locally focused techniques and materials. These ideas cover many topics, but as trial and revision are our life style, no finished literature can be distributed.

Problems:
Though the Project implements many ideas at the secondary level administrative organizations, specifically departmentalization and scheduling, make interdiciplinary problem-solving difficult. Often studies are carried out within disciplines and the project must introduce other environmental considerations. This is not consistent with our philosophy and the project attempts to cross department lines by consolidating classes, introducing the expertise of "other" faculty members, and developing multidisciplinary approaches. To this end, an experimental class in environmental studies for high school students is offered to demonstrate new techniques and ideas to the secondary faculty.

-Robert Ervin

PROGRAM TITLE: ANDROSCOGGIN RIVER STUDY

DIRECTOR: Karen Tilton, Jay High School, Jay, Maine 04239.
(207)897-3301

The Androscoggin River Study is an attempt by high school students to keep track of the conditions of the Androscoggin River, rated at one time among the ten most polluted rivers in the country. To do this, the river has been tested over its entire length and is now being tested at one place over the changing seasons. Results of the study of the river's length have been recorded on video tape as a permanent photographic essay of the conditions in 1973.

The River Study evolved from a decision by the science club to do something scientific and record it for posterity on video tape.

Living in the Androscoggin River Valley and having a large paper mill in our community, we looked toward the river and found a large source of pollution and many unanswered questions. The students spent the spring of 1973 choosing which tests to run and researching the history of the river. It was decided to travel the length of the river and take water samples every five miles testing for dissolved oxygen, dissolved carbon dioxide, temperature, suspended solids, nitrates, phosphates, pH, and E-coli. This was done during the fall of 1973 and was recorded in pictures, slides, and movies. Graphs were made of the results of the testing. The next phase of the project was to interview representatives of various polluting industries and discuss the problems faced by industry in cleaning up the Androscoggin. The final segment of the study was putting the results and interviews together into a workable script supplemented by the charts, slides, movies, and photographs, and making the video tape as a permanent record of the work done. The video work was done at the University of Maine at Farmington using their 3 camera TV studio.

The end product, a 25-minute documentary titled A Profile of the Androscoggin River is now being used in classes and showings to interested local groups. (Rotary clubs, Extension groups, Senior Citizens, etc.). It has also been used at a Water Quality Conference by the Natural Resources Council of Maine. It was viewed by the Energy Conservation Corps and representatives of Scholastic Magazine. We are now putting together a color slide-tape program to be used by large groups showings when video tape is impractical.

This fall and winter we will be continuing with our water analysis phase of the river study by testing the river locally at three sites each week for the school year. This will be done by various classes for six to nine week time blocks. The end result hoped for is a view of water conditions within the river as the seasons change. We also plan to take another group down the river in the spring of 1975.

-K. Tilton

PROGRAM TITLE: THE MAINE LAND USE CHALLENGE

DIRECTOR: Patricia Solotaire, Center for Research and Advanced Study, University of Maine at Portland-Gorham, 246 Deering Avenue, Portland, Maine 04102. (207)773-2981 Ext. 464, 465

The Maine Land Use Challenge is a complete teaching unit aimed at the secondary school level (8th grade and up). It includes a film, slide series, simulated land use problems, a case study of land use in a Maine Coastal Community and the use of a questionnaire to determine student attitudes towards land use. The unit, which covers ten hours of class time, will be distributed free of charge to public and private schools in Maine. It is available for $10.00 to out-of-state schools or groups. Land Use Challenge has two basic objectives: to acquaint the young people of Maine with the land use decision-making structure in their state, and to instill the concept that some form of planning is necessary to assure that development takes place in an environmentally, economically and socially sound manner.

This project is essentially a spin-off of a Land Use Conference held by the Allagash Institute in Phippsburg, Maine. At the conference, townspeople and state and federal officials met and confronted the basic issues of land use: who has the right to make decisions, and on what basis would these decisions be made? A Public Television film was made of the discussion, filmed against the background of the Phippsburg peninsula and distributed to civic groups across the state. We felt, however, that the film demonstrated land use problems so clearly and vividly that greater use should be made of it, and decided to make it the core of a secondary school curriculum.

The Maine Land Use Challenge is our only project directly connected with education, although we have also published a Landowners Handbook, which informs individual landowners on the complexities of land use departments and laws in Maine.

In designing the unit, the essential problem lay in deciding precisely what we wanted to teach. Land use, of course, is an awesomely complex subject, and it was difficult to narrow it down to what we considered the most important elements. By keeping in mind that we were dealing with young people who had, for the most part, no experience in their towns with planning in any form, we concentrated on asking questions that would start them thinking about the varieties of land use and their resulting benefits and disbenefits.

We are presently participating in a federally-funded project to promote the watershed concept in land-use planning. Our particular contribution will be to estimate the economic advantages of restoring the Presumpscott Esturary to its original productivity and purity.

MATERIALS:

Film: Maineland. 28 mins. sound and color. Available for distribution at a $5.00 charge.

Landowners' Handbook. Tower Publishing, 163 Middle Street, Portland, Maine. $3.25 individual copy (bulk rates available).

A Maine Manifest. Economic land use analysis of Maine with suggestion for effective development strategy. Tower Publishing $1.50.

A Non-Industrial Future for the Maine Coast. An Allagash Institute Report to the Governor's Task Force on Energy: a review of the possible courses of development for Maine from an environmental and economic viewpoint. Available from the Center for Research, Allagash Environmental Institute. No charge.

-P. Solotaire

PROGRAM TITLE: ENVIRONMENTAL EDUCATION - A MARYLAND APPROACH

DIRECTOR: Dr. James W. Latham, Jr., Maryland State Department of Education, Division of Instruction, P.O. Box 8717, BWI Airport, Baltimore, Maryland 21240. (301)796-8300 Ext. 418

Objectives:
1. Initiate the implementation of a comprehensive program of environmental education in all elementary and secondary schools of the State of Maryland.
2. Activities to date have included leadership workshops, and the preparation of curriculum materials.

History:
1. In January of 1970, the State Board of Education adopted a resolution calling for the establishment of a planned program of environmental education in all of the schools.
2. A State Advisory Committee recommended the approach to be taken.
3. A State Department Staff has been involved in public information, providing leadership training, multi-state planning, and the preparation of a curriculum framework.
4. The curricular framework will be available in November and the State Staff will work in implementing this in all the schools.

A comprehensive interdisciplinary curricular framework will be made available and implemented in the schools beginning in November 1974. This framework identifies goals, objectives, and student behaviors for different age grade levels of students. We are also preparing a special guide for Aesthetics and the Environment. These materials will be available in May of 1975.

We have received only limited funding for environmental education. Funds from the Federal Office of Environmental Education have not been made available to support this project.

Currently we are planning for the implementation of our program and designing special programs for students. We are also considering the production of an Environmental Education Issues television series for broadcast on our State network.

-J. Latham

ERIC DOCUMENTS:

1. Education and the Environment. Report of a Multi-State Conference, November 8-10, 1971, Annapolis, Maryland. ED 075 314
2. Report to the Governor of Maryland and Maryland General Assembly. SE 018 500
3. Environmental Education, A Maryland Approach. SE 018 602

PROGRAM TITLE: A MODEL FOR THE INSERVICE TRAINING OF SECONDARY SCHOOL TEACHERS AS ENVIRONMENTAL EDUCATORS

DIRECTOR: Leverne J. Thelen, School of Education, University of Massachusetts, Amherst, Massachusetts 01002. (413)545-1572

It is proposed to develop a model for in-service teacher training in environmental education for secondary school teachers that combines the resources and potential of both the formal (University of Massachusetts) and non-formal (Massachusetts Audubon Society and New England Aquarium) segments of the total educational system. The primary goal of the model is to foster the introduction of environmental education materials into the school curriculum on both a disciplinary and transdisciplinary basis and to facilitate the effective instruction of environmental issues, concepts and principles. The model utilized the teacher's own working-teaching situation as an instructional laboratory in addition to more traditional lecture-laboratory approaches. In order to facilitate the transfer of what the teachers learn in the lecture-laboratory situation to their own classroom, a series of teacher-learner packets are being developed on specific problems associated with the introduction of environmental education materials into the curriculum. These modules are appropriate for a wide variety of existing disciplines such as science, social sciences, mathematics, art and English. Teachers are being encouraged to select from the pool of modules those they feel will be most useful to them, given their background and their own teaching situation, or will be encouraged to develop new ones more appropriate to their own teaching environment. By means of the modules the teachers are able to augment their background in an area and have a laboratory, their own classrooms, in which to study the problems associated with the introduction of environmental problems and issues into the curriculum. In order to provide the teachers with support for their efforts in their own schools, interdisciplinary teams of three to five teachers were selected from each participating secondary school with no more than two teachers from any one discipline.

The project is an outgrowth of the recommendations of the Massachusetts Task Force on Environmental Education and as a result of their study of needs in which the in-service training of teachers was assigned a high priority. The University of Massachusetts, the Massachusetts Audubon Society and the New England Aquarium entered into discussions and the conclusion was rapidly reached that the most efficacious means of achieving the desired in-service training would be by a pooling of the efforts and resources of the three independent agencies. The present project and cooperative effort is a direct result of these discussions.

The program is in its earliest stages, some modules have been written, the planning of others is underway, and the first in-service sessions have been planned. The planning of subsequent in-service sessions is awaiting the completion of a needs analysis survey.

As a culmination of the program, the participating team of teachers from each school system will be expected to prepare for their school system one or more of the following: (1) a plan for the integration of environmentally related problems into the curriculum of the school system either on a disciplinary or interdisciplinary basis; (2) specific recommendations for the use in the curriculum of field study sites and community resources; and (3) a proposal for environmentally related programs of in-service education for their own school systems in which their institute training and experience serve as primary resources. In addition the formation of an informal organization called Environmental Educators Cooperative is being studied with the purpose of maintaining contact among the participating teachers for the purpose of sharing of ideas and strategies.

No materials are yet available and materials will not be available until they have been field-tested and revised.

-L. J. Thelen

PROGRAM TITLE: ELEMENTARY EDUCATION ECOLGY POEM AND POSTER PROGRAM

DIRECTOR: Paul G. Keough, Director, Public Affairs, United States Environmental Protection Agency Region I, J.F. Kennedy Federal Building, Boston, Massachusetts 02203. (617)223-4704

The New England Regional Office of the U.S. Environmental Protection Agency is in the process of carrying out, for the third consecutive year, an Elementary Education Ecology Poem and Poster Program.

This program is designed to bring about a greater awareness and concern for environmental matters on the part of the young people in the six New England states. The rules are simple:

> Teachers are asked to talk about the environment during February; have their students prepare a poem, poster or short story,

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and then send the two best entries to our office for judging. We have a citizens' panel review all of the entries and various awards are given. For the past two years, the governors of the New England states have hosted award ceremonies at the various state houses where plaques are presented.

We are quite proud of our environmental education program. Last year some 3,700 teachers in the Region, representing more than 100,000 elementary students, participated. We reviewed more than 7,000 entries to the program, and it appears that the 1975 program will even be larger.

-P. G. Keough

PROGRAM TITLE: QUALITY URBAN ENVIRONMENTAL STUDIES TRAINING (QUEST)

DIRECTOR: Maurice J. Donnelly, Brockton High School, 470 Forest Avenue, Brockton, Massachusetts 02401. (617)588-7800 Ext. 609

The target population for the basic QUEST I course are sophomores, juniors, and seniors on the standard, honors, and advanced academic levels. The program began with sixty students and now has over two hundred.

The target poplation for the QUEST II course are those who complete the QUEST I course successfully and are selected by the staff for QUEST II. QUEST II is composed of three major components: students serve as teacher aids and after training, teach selected portions of QUEST I classes; students create lesson plans which they will later teach to elementary school classes; students engage in independent research on a local environmental problem.

The target population for the QUEST center is the community as a whole. In 1973-74 over 7,000 students, teachers, and other individuals utilized the services and resources of the QUEST center. The students and staff of QUEST form a team to supply these services and resources to the community.

Project QUEST was funded from school years 1971-1972 to 1973-1974 under Title III of the elementary and secondary education act and the City of Brockton. It is now fully funded by the city of Brockton. The purpose of the program was and is to provide a series of environmental encounters for students so that they will enter the community fully cognizant of the environmental problems facing their community.

Project QUEST is now engaged in teaching students in environmental studies; developing materials for elementary and junior high schools; and providing the community and school system with services and materials from the QUEST center. The QUEST Center has been utilized by:

1. Teachers and students from the Brockton School System.
2. Teacher and students from seven area towns.
3. Teachers and students from eight area colleges.
4. The regional planning council.
5. Plymouth county extension servies.
6. Bristol county extension services.
7. Area conservation commissions
8. Watershed associations.
9. 4-H clubs.
10. Other Title III projects.
11. Various municipal agencies.

Major problems included staff stability and the development of the interdisciplinary aspect of the course. Instability of staff was due to marriage and changes in location. The staff is now stable and well developed.

The interdisciplinary difficulty was, to a great extent, eliminated during the second year of the program by rewriting many of the lessons and objectives. The difficulty was further eliminated by the simple process of informing the students of the objectives of each lesson and by demonstrating the interrelatedness of the various disciplines in each lesson.

QUEST is now fully funded by the Brockton Public School System and is an integral part of the curriculum at Brockton High School.

Plans are now being made to extend the program in the city schools and the schools of the area community.

-M. J. Donnelly

ERIC DOCUMENT:
Project QUEST. An Environmental Studies Curriculum for High School. SE 018 489

PROGRAM TITLE: EARTHWATCH

DIRECTOR: Smithsonian Center for Short-Lived Phenomena,
60 Garden Street, Cambridge, Massachusetts 02138.

Fifty thousand high school and college students in the U.S. are participating in a world-wide scientific "hotline", scouting unusual earth events for the Smithsonian Institution's Center for Short-Lived Phenomena. Known as the International Environmental Alert Network, the year-old project may be the front-runner of a United Nations-operated monitoring system to help guard the environmental quality of the planet.

The student network was responsible for more than a quarter of the information communicated to the Smithsonian last year, according to Publications Director James Cornell. Reports of happenings such as deer starvation in Louisiana or caterpillar outbreak in Belguim are verified at the Smithsonian Center in Cambridge, Massachusetts, and evaluated for their potential research importance.

In addition to involving students in this environmental watch, the Center inaugurated a series of short-term projects using young people to collect samples or observational data too broad for standard monitory activities.

The Smithsonian Center for Short-Lived Phenomena is also currently assisting the U.N. Environment Program in planning a Global Environmental Monitoring System which should eventually incorporate the student reporting network.

-From: Environmental Education Report
November 1974

PROGRAM TITLE: MASSACHUSETTS AUDUBON SOCIETY

DIRECTOR: Charles E. Roth, South Great Road, Lincoln, Massachusetts 01773.

ERIC DOCUMENTS:
1. Aids to Environmental Education: Pre-school-Grade 3; Grades 4-6; Update 1 (June 1974). ED 093 763
2. Aids to Environmental Education: Grades 7-9, 10-14; Update 1 (June 1974). ED 093 764
3. Aids to Environmental Education: The Energy Crisis - Aids to Study. ED 093 765
4. Habitat Project. De-Icing Salts and the Environment. SE 018 445

PROGRAM TITLE: ENVIRONMENTAL EDUCATION ACTIVITIES

DIRECTOR: Dr. John C. Rosemergy, Science Coordinator, Ann Arbor Public Schools, 601 W. Stadium Blvd., Ann Arbor, Michigan 48103. (313)994-2162

We have a staff of consultants who: conduct field trips for classes in grades K-12; present classroom lessons upon request; confer with teachers and committees involved in school site development, camping programs, etc. In addition, we have teachers who present several secondary school courses in the area of environmental education. The elementary school field trip program is ambitious. Classes at each grade level are taken on trips designed to enhance the science or social studies instruction of that grade level. Our staff of employed consultants is assisted in the field trip program by a corps of volunteers.

Our first secondary school conservation course was instituted in 1955 and grew out of a conservation club which had functioned for many years. Our elementary school field trip program was inaugurated in 1961. We have had a long and helpful relationship with local environmentally-oriented organizations and with the University of Michigan.

Most of our problems have been financial.

We have no publications.

-J. Rosemergy

PROGRAM TITLE: CURRICULUM RESOURCES FOR ENVIRONMENTAL PROGRESS

DIRECTOR: Brenda Cutler, Kalamazoo Nature Center, 7000 N. Westnedge Avenue, Kalamazoo, Michigan 49007. (616)381-1574 Ext. 25

The HEW grant (P.L.91-516) that the Nature Center has received has two main objectives: (a) to inventory environmental information in the libraries of the Kalamazoo Valley Intermediate School District, and (b) to develop an open-ended, multidisciplinary curriculum for grades 7-12 in the areas of land use, natural resources (allocation and depletion), and energy (resources, use, and conservation).

Although the Nature Center is geared to environmental education for all ages, this is the first government grant the Nature Center has received. The grant was pursued with the support of the Kalamazoo Area Committee on Conserving Energy which is a group composed of local representatives from the state legislature; paper, oil and power companies; four colleges; intermediate school district; the Nature Center; and the chamber of commerce. It is the Committee's hope that the work of the project will bring about long term changes in individual philosophies of energy use which will have greater impact than the Committee could accomplish with its own resources.

When the project is completed, this curriculum will be available nationally and the resource inventory, although most useful locally, will be a model for other communities to use.

No specific problems have been encountered to date.

After the project for which initial funding was granted is completed, we plan to apply for further grant monies to train teachers to use the curriculum most effectively.

No publications have been produced thus far.

-B. Cutler

PROGRAM TITLE: DISCOVERY THROUGH OUTDOOR EDUCATION

DIRECTOR: Ms. Kristy Bott, Macomb Intermediate School District,
44001 Garfield Road, Mount Clemens, Michigan 48043.
(313)465-2101 Ext. 318

In the fall of 1971, a project was begun to serve the handicapped children, pre-school through high school, in all twenty-one constituent school districts of Macomb County. Macomb County lies about 20 miles north of Detroit, Michigan. This project entitled, "Discovery Through Outdoor Education," is funded through the Elementary and Secondary Education Act of 1965, Title III. The funding was contingent upon committee approval each year for three years. This project has been validated by the State Department of Education and awarded directly to the Macomb Intermediate School District (MISD).

Youngsters handicapped physically, mentally and emotionally, who are qualified for special education services, participate in the project. Virtually all types of handicapped children have taken part in the project during the three years of its existence. The students take part as members of their special education classes along with their own classroom teachers. In the second year only, three sessions were of the "all district" type; that is, participants were chosen for special reasons to attend the resident sessions, not necessarily with their own class but as a mixture of students and teachers from the whole Intermediate School District.

Over the past three years (September 1971 through June 1974), fifty-three laboratory sessions were held making use of the resources which the Intermediate School District provides through this project. These resources are manyfold. They include the provision of an overnight outdoor facility (Camp Rotary on 29 Mile Road and Wolcott), food and administrative help in planning and programming of the resident session. In addition to these resources, the project presented workshops for teachers and administrators to help them become more knowledgeable in outdoor education and more confident in introducing new areas of learning to their students. With the cooperation of Michigan State University, a course in outdoor education with university credit was also offered.

The stated purposes of this project as set forth in the project abstract are: "(1) to improve youngsters' achievement in regular school subjects, their self-concepts, interpersonal relationships, and leisure skills; (2) to train special education teachers in the utilization of the outdoors for providing learning opportunities to handicapped children (3) to test an outdoor educational model for improving the learning and lives of handicapped youngsters; (4) to educate and involve parents in the program; (5) and to train and utilize college students as teacher aides for handicapped students."

The general procedures for the attainment of these goals as further stated in the project abstract are: (1) involving parents, special education teachers, handicapped youngsters, and general education, high school and college students in project planning, implementation and evaluation; (2) providing outdoor education workshops for teachers, parents and student aides; (3) implementing articulation between learning experiences provided in the outdoors and those provided in the indoor special education classrooms: (4) providing opportunities for handicapped students to have learning experiences in outdoor settings including resident outdoor school experiences where students and educators will learn and live together 24 hours a day: and (5) utilization of various community resources, clubs and organizations who have the potential to contribute to the education of handicapped youngsters.

The laboratory sessions held during the 1971-1974 school years involved over 3,000 special education students directly. Individual teachers contacted the project coordinator expressing interest in organizing and attending a laboratory session with their students. The project, using Title III funds, sponsored these interested groups. Dates were reserved at Camp Rotary and monies were given to the individual groups to purchase food. Meetings with the project coordinator were held to discuss organization scheduling, and pre/post test requirements.

The difference between these laboratory sessions and other outdoor programs was, of course, that all of these children were from special education classes. Many students were in wheelchairs and on crutches. None of the students in any of the participating groups was excluded from any activity due to his or her particular handicaps. Students from high schools and junior highs in the local school districts volunteered to help as counselors and aides in the laboratory sessions. Their main responsibility was to take care of the students and relieve teachers. They also helped push wheelchairs and prepare food. For some of the sessions, there were as many as one or two student counselors for every handicapped child. Their aid proved invaluable to the success of each laboratory session.

The original proposal was written and directed for 2½ years by the late Mr. Edward Alexander, His enthusiasm and energy were key factors in the creativeness and high levels of success the program experienced. The present project coordinator, Miss Kristy Bott, and secretary to the project, Mrs. Nan Zacharias, are the two full-time personnel. The Macomb Intermediate School District (MISD) houses the offices and administers the funds which are received vis the E.S.E.A. Title III offices in Lansing. The secretary to the project is directly responsible to the project coordinator, who is responsible to the Macomb Intermediate School District and Title III in turn. Dr. Maureen Sie and Dr. Donald Marcotte from Wayne State University were contracted to evaluate the effectiveness of the project in its designated purposes. Mr. Donald Bannasch, OTR, was also contracted to help with the writing of dissemination materials.

Camp Rotary itself was donated for the project's use throughout the years by the Rotarians of Macomb County. Many others participated and helped throughout the community, contributing time and donating merchandise which the project needed. Large amounts of parental support and concern were demonstrated throughout the duration of the project. Transportation to and from the camp was provided by the individual school districts with the cooperation many times of off-duty bus drivers working without pay.

An experimental group of trainable mentally impaired students from Keith Bovenschen School attended Camp Rotary once a month for eight consecutive months during the 1973-74 school year. Each of the eight laboratory sessions was three days and two nights in duration. Pre- and post-tests were designed each session to assess the scholastic gain of each student at the laboratory site. On the basis of the data obtained, determination of fourth-year funding was made.

During the fourth year of operation, the project's goals are: (1) to provide in-service for the Macomb County demonstration teachers; (2) demonstrate the project to statewide interested persons; and (3) to complete and disseminate a manual entitled Discovery and a Discovery kit containing filmstrips, cassettes and script.

Publications: First Year Evaluation Report; Second Year Evaluation Report; Third Year Evaluation Report; Homemade Innovative Play Equipment; Discovery Manual; Discovery kit containing four filmstrips and two cassettes.

-K. Bott

ERIC DOCUMENT:
Discovery Through Outdoor Education. ESEA Title III Evaluation Report, School Year 1973-74. ED 097 168

PROGRAM TITLE: THE MISSISSIPPI CONSERVATION EDUCATION ADVISORY COUNCIL

CONTACT: Michael G. Carothers, Supervisor of Environmental Education, State Department of Education, Division of Instruction, Box 771, Jackson, Mississippi 39205. (601)354-6965

On May 11, 1967 the Mississippi Conservation Education Advisory Council was established by a meeting called at the request of Mr. J. M. Tubb, at that time State Superintendent of Education. The volunteer members attending the meeting were educators, representatives of various natural resource agencies and associations, and individuals interested in conservation.

The organization's stated belief was and is that the welfare of the citizens of our state and country depends upon the development, wise use and protection of our natural resources. The Council bases its existence upon the need for conservation education as a basic part of the general education program.

A short time after its establishment in 1967, the Council recommended that the position of Environmental Education Consultant be established in the State Department of Education. The primary responsibility of that post would be to work with individual schools and others in promoting the teaching of conservation education at all levels and that a bibliography identifying conservation people, resources and materials be developed. This bibliography could be prepared by resource-use agencies and used by educators.

In 1970, the State Department of Education established the position of Environmental Education Consultant and Assistant Coordinator of NDEA Title III. To achieve its goals the Mississippi Conservation Education Advisory Council works cooperatively with the State Department of Education through the Environmental Consultant in the Division of Instructional Services as an advisory body in conservation education matters.

The development of a state plan for environmental education was initiated by the Council in November, 1971. At the present time the State Plan is completed in its draft form and efforts are in progress to refine the plan and identify means of effectively implementing that plan stateside at local levels.

Since the establishment of the Mississippi Conservation Education Advisory Council and the post of Environmental Consultant in the State Department of Education among its other contributions the Council has been highly successful in promoting teacher conservation workshops throughout the state. At this time, four such workshops are conducted during the summer months with various resource-use agencies cooperating with the University of Mississippi, Mississippi State University, and Delta State University in providing facilities, resources and highly qualified facilitators and instructors. Selection of educators to participate and efforts to coordinate these workshops are responsibilities of the State Department of Education's Environmental Education Consultant. Educators who participate receive graduate or undergraduate credit for successful completion of the programs through the participating institutions of higher learning. Progress has also been made in helping students who participate in analogous activities to receive high school credit for their work in conservation education.

Efforts are in progress to implement the State Plan at regional levels throughout the entire state through the cooperative efforts of the State Department of Education, the University of Mississippi, and all junior colleges in the state with the assistance of funds secured by the University of Mississippi through Title I of the Higher Education Act.

In general the Mississippi Conservation Education Advisory Council is committed to promoting all efforts related to developing positive attitudes towards man's relationship to his environment through all means at its disposal.

-M. Carothers

PROGRAM TITLE: ENVIRONMENTAL ECOLOGICAL EDUCATION PROGRAM

DIRECTOR: Verlin Abbott, Parkway School District, 455 North Woods Mill Road, Chesterfield, Missouri 63017.

ERIC DOCUMENTS:
1. *Environmental Ecological Education Programs. Interim Evaluation Report July 1, 1971-June 30, 1972*. ED 079 106
2. *Social Aspects of Conservation - Two Considerations: Clothing - Doers and Recreation - Leisure*. SE 018 225
3. *Vandalism*. ED 097 218
4. *Planning for the Future on Spaceship Earth*. ED 097 219
5. *Paper*. ED 097 220
6. *The Living Forest*. ED 097 221
7. *The Farm - Its Function and Future*. ED 097 222
8. *Everything You've Always Wanted to Know About Weather But Were Afraid to Ask*. SE 018 231
9. *Environmental and Architectural Influences on Homes*. SE 018 232
10. *The Development of a Subdivision Within the Parkway School District*. SE 018 233
11. *Meet Me in St. Louie, Louie But Leave Your Car at Home*. SE 018 234
12. *Trash - Our Only Growing Resource*. SE 018 235
13. *Air Pollution*. SE 018 236
14. *Population*. SE 018 237
15. *This Land is Your Land*. SE 018 238
16. *Communities in Nature*. SE 018 239

17. Communication: Within the School Site, Community and Area into Space. SE 018 240
18. The Classroom as a Miniature Society. SE 018 241
19. The Changing Scene - A Short History of the Parkway Area. SE 018 242
20. Boomsville to Doomsville - Development of Industry Within a Community. SE 018 243

PROGRAM TITLE: ENVIRONMENTAL RADIO

DIRECTOR: Dr. Barry Commoner, The Center for the Biology of Natural Systems, Box 1126, Washington University, St. Louis, Missouri 63130. (314)863-0100 Ext. 4457

During the 1973-74 school year, the Center for the Biology of Natural Systems, through a grant from the Office of Environmental Education, provided middle and high school science teachers and students with curriculum materials concerning current environmental topics. These materials were produced as part of a project to supply environmental news features to National Public Radio. We have recently received additional funds from OEE to expand The Radio Project for the coming year.

The objective of the project was to provide the general public with up-to-date information on important environmental issues. The Center's program is based on the belief that decisions on environmental issues must be made by an informed public. Through its Environmental Field Program, first established in 1969, the Center has sought to bring up-to-date environmental information to lay audiences.

The goals of Environmental News Features were derived from the experience of this program in consultation with experts in the fields of environmental education, environmental journalism and radio news broadcasting.

Although the radio programs were aimed at the public generally, our "target population" consisted mainly of high school and middle school students. Therefore, we felt that the success of our primary goal depended on presenting the material in the most interesting and stimulating way possible. Special attention was paid to high school and middle school students in selecting the topics to be covered by the programs, in considering the depth of coverage of each topic, and in devising the curriculum materials to be associated with each program transcript.

We felt that in the middle and high school setting, environmental education is too often synonymous with "ecology", hiking in the woods inspecting the flora and fauna, and measuring eutrophication with a Hach Kit. While we believe that these aspects of environmental education are important, we were more concerned that students be made aware of the "real-life" day-to-day significance of ecological issues. We wanted them to learn that "the environment" can be urban as well as rural, that "ecological" interactions include machines as well as plants and animals, and that the paper and energy consumption of fast-food chains is as much an environmental issue as the Alaskan Pipeline or the ban on DDT. Thus we aimed at teaching not just facts, but also a different way of thinking about environmental problems.

Materials:

Each curriculum packet consists of a transcript of the program as it is aired on NPR (three to five minutes in length), discussion questions, suggested student activities, and suggested further reading. Programs approaching the same topic from different perspectives may appear as a set with comprehensive curriculum materials. Curriculum materials for individual programs may be ordered from us for $.25 each. materials for the two or three program sets are available for $.50 each. We plan to produce two or three programs per week from now until the end of June 1975. The entire series costs $15.00.

Also available are curriculum materials and tapes of the programs produced by the project during the past year. Tapes may be purchased for $1.50 per program, and the curriculum materials for $.25 each or $8.00 for the entire series. A complete list of programs is available upon request.

-Lawrence S. Weisberg
Coordinator

PROGRAM TITLE: FORESTA INSTITUTE - ENVIRONMENTAL EDUCATION PROGRAMS

DIRECTOR: Richard Gordon Miller, Director - Foresta; Marla Painter, Director of E. E. Programs; 6205 Franktown Road, Carson City, Nevada 89701. (702)882-6361

Foresta Institute is currently offering environmental education programs designed for pre-school age through adult education. The three full-time environmental education staff have diverse educational backgrounds which enable them to offer a variety of approaches to environmental education and to emphasize an in interdisciplinary mode of learning. The three naturalists/ecologists have their own specialities: Greg Kniseley in biology, Jean Taylor in art; and Marla Painter in the social sciences. All three have been involved in Foresta's summer programs which include the National Science Foundation Summer Science Training Program for high school students and the Washoe Pines environmental education camp for younger students.

The staff provides individual programs which meet the needs of a particular classroom's curriculum. The public school program, which includes both field trips to Foresta by a school group or visitations to the classroom by one or more of the environmental education staff, is designed to supplement and enrich the curriculum of public and private schools in environmental studies, natural sciences, art, history, and social sciences. For grades K-6, the staff can provide a unique field trip experience during any season of the year. The field trip includes an exploration of Foresta's scientific and library facilities, a presentation of local history and land use in the Will James Lodge, a nature trail exploration along the Jeffrey pine-sagebrush hillside, a lively puppet show on an environmental problem, and a session in art enhancing the child's awareness of his environment. For grades 7-12, the staff can provide a more sophisticated investigation of local, nearby ecosystems utilizing some of the basic techniques of biological research, the concepts involved in land use planning and resource utilization, sessions exploring basic ecological concepts, a presentation of local Nevada history, values clarification exercises, and various art activities which sharpen observation of the environment to details and essentials.

Another available service is a visit to a school classroom by one of the Foresta staff. The program might include a talk or demonstration on specific ecological concepts, endangered species, local and global environmental concerns, regional planning, simulation games, activities exploring the advantageous use of the impact of silence and natural habitats for artistic creativity, or field biology research techniques useful in studying an ecosystem.

The education staff also offers workshops in environmental education for public school teachers and student teachers. The workshops are directed at developing the environmental education consciousness in teachers as well as equipping them with activities, classroom design ideas, new concepts in how to use the school yard more effectively as learning centers, and at generating excitement and lines of communication between teachers.

Another effort in environmental education is in offering classes for the community college and development of "community education" which reach out to people who cannot or do not otherwise utilize the resources of public higher education. Courses in environmental awareness, action, and appreciation would be offered.

Washoe Pines Camp is a five-week summer project of Foresta designed for students 10-16 years old. It is multi-racial, multi-ethnic learning through the exploration of human and natural environments of the west. Activities center around ecology, western history, environmental sensitivity, art, life crafts, gardening, cooking, music, dance, horseback riding, swimming, and expanding social consciousness.

Foresta Institute is located on Washoe Pines Ranch at the foot of the eastern Sierras about eight miles north of Carson City. Foresta is a non-profit, tax-exempt organization offering its services and features at cost.

-M. Painter

PROGRAM TITLE: INTERDISCIPLINARY ENVIRONMENTAL EDUCATION - GRADES 7-9; ELEMENTARY/MIDDLE SCHOOL ENVIRONMENTAL EDUCATION

DIRECTOR: Allie Quinn, Regional Center for Educational Training, Wilson Hall, Hanover, New Hampshire 03755. (603)643-4564

Concept: This is a proposal to develop an interdisciplinary environmental education program for grades 7-9 for specific schools in New Hampshire and Vermont served by the Regional Center for Education Training (RCET), Hanover, New Hampshire. The fifteen month program focuses on processes for accomplishing curriculum innovations and creating the self sustaining momentum necessary for continuous curriculum development within the schools. For maximum effect curriculum design, personnel training, program implementation, and evaluation are integrated concurrent processes, not separate or sequential steps. Participants and target groups - teachers, students, administrators, and community members - are involved from the outset. Implementation questions, overcoming resistances, diminishing attitudinal barriers, and building personal commitment receive central focus along with product outputs. The program is designed to be low cost, utilizing available local expertise and the talents of the participants and target groups, in order to increase its initial acceptability and later diffusion in the area. The program offers a dynamic process to bring the proper people together with the knowledge, with sensitivity to program and participant needs, and with the continuous involvement needed to actually learn how to develop key environmental concepts and teaching methods themselves.

Strategies: This is accomplished through two strategies described in detail. Strategy I is a one year course format involving formal classes, seminars, consultation and feedback; resource-curriculum materials development projects; and testing in the specific school-community situation with student involvement in community problem solving. Strategy II is a workshop-conference format where community, resource, and selected teachers first meet in workshops to plan specific activities for use with students in the classroom and the community. Then---using concepts, methodologies, and information developed---activities are actually tested in participating schools. Then further regional conferences are held to disseminate tested concepts and materials and to obtain wider involvement of target groups. This is followed up by further concept and methodologoy workshops and by stimulated school-community activities and programs on selected topics.

Results: Both strategies lead to (1) community environmental programs designed by students, teachers, and the community itself; (2) development of curriculum and resource materials specifically adapted to and economically practical for area needs at the 7-9 grade levels; (3) development of personnel competent and confident enough to actually introduce and develop environmental programs; (4) interdisciplinary problem solving programs which are community oriented and adapted to the specific curricula of the districts; (5) process training to design, integrate, implement, and disseminate curriculum materials and teaching concepts for environmental education. Initial small scale tests indicate a large potential for successful development possibilities which could be meaningful in other regions of the U.S.

The Regional Center for Educational Training is a private, nonprofit educational service agency serving nine supervisory unions (with approximately 80 member schools) in New Hampshire and Vermont. While the Center has offered many environmentally oriented services since its inception in 1967, it was not until the summer of 1973 that these activities were focused by means of a special "environmental education" program. The present program is built on the extensive experience of the prior seven years as well as on its first year's needs assessment and preliminary teacher training efforts. Support has been obtained under P.L. 91-516.

The Elementary-Middle School Environmental Education (EMSEE) Program of the Regional Center was initiated in the Summer of 1973 in response to school and community requests for help in including environmental studies in school curriculum. As a result of a "needs assessment" and experimentation with workshop models (i.e., Energy Workshop and Conference in Winter, 1974), the program was extended to include high school level environmental studies as well.

There are five major activities underway for 1974-75:

1. Continuing needs assessment to get acquainted and determine needs and resources available. Allie Quinn and Jan Chapman from the EMSEE Staff will be contacting new administrators and teachers, as well as others not yet contacted, to make new appointments.
2. Help to individual school districts in cooperation with the Vermont Institute of Natural Science to provide:
    a. Training programs for volunteers (a description of the EVA - Environmental Volunteer Aides - program is available.
    b. Workshops for teachers on: using own school grounds for environmental studies; inquiry-discovery approaches; sorting and classifying; 10-minute field trips; seasonal environmental topics.
    c. Special resources, speakers, and A V materials on: population problems; energy issues; recycling; land use.

d. Field trip information - schools in the Regional Center area are eligible to take classes to visit the Bird Banding Station of the Vermont Institute of Natural Science in Woodstock, Vermont for the nomial fee of $15 per visit. Those classes seriously involved in bird study who cannot afford such an opportunity should call Allie Quinn - there are limited grant funds available for this purpose.

3. Extension courses offered in environmental studies:
   a. "Interdisciplinary Environmental Studies for Grades 6-10" will be offered in the Fall of 1974 to help teachers identify and design their own training needs. This course will be followed up in the Winter and Spring with team projects and experimental activities in the classrooms. A U.S. Office of Education grant will make it possible to offer stipends to teachers for refining their projects next summer.
   b. Environmental Studies-Science for Elementary Level may be made available in the spring if there is sufficient interest.
4. Development of Regional Center resources and loan materials:
   a. Kits for loan through the MOVE Program: Seeds; Winter Trees and Twigs; Pond Life; Tracks; Sorting and Classifying (being developed).
   b. A collection of curriculum materials developed elsewhere will be made available for loan and evaluation.
5. Regional workshops, conferences and follow-up programs on "Issues of Growth in the Community" is planned for the Winter of 1975 in the same model as the Energy Conference of 1974. The activities will be open to all teachers K-12 as well as interested community members. There will also be workshops in the Spring of 1975 on specific ecological topics.

During the three to four year projected life of the EMSEE Program, the Regional Center will be able to assist schools to develop their own dynamic mechanisms for introducing, operating and improving environmental curricula. The key factor will be training school staff to contribute to these curricula developments. After this "start up" effort, continuing environmental education needs of the schools can be met by the normal core services offered by the Regional Center.

The various Regional Center for Education Training approaches were designed to meet problems of developing and implementing significant environmental education curricula in area schools. It is too early in the projects to evaluate strategies for accomplishing this. However, no significant problems have been encountered.

Plans for the future center on carrying present activities to fruition. Additional goals concern extensive development of backup resource loan materials specifically adapted to this geographical region.

Materials from the Indisciplinary Environmental Education - Grades 7-9 Program are scheduled for late summer 1975. These will include curriculum and resource materials as well as a report on the processes developed for the overall project. The only publication related to the Elementary/Middle School Environmental Education program is an earlier guide prepared to assist schools in training volunteers to work as environmental aides. This booklet has been distributed to all New Hampshire schools by the New Hampshire Department of Education and (while the supply lasts) is available from the Regional Center for $2.00 ($1.50 for five copies or more, or single copies without mailing costs).

-A. Quinn

ERIC DOCUMENT:
A Manual for a Volunteer Field Aide Program. SE 018 420

PROGRAM TITLE: KEENE ENVIRONMENTAL SCIENCE PROJECT

DIRECTOR: Richard P. Tremblay, Chairman, Science Department, Keene High School, 43 Arch Street, Keene, New Hampshire 03431. (603)352-0640

Purpose:
It is the intent of this project to develop an awareness, provide the knowledge and encourage the action which will lead toward the solution of environmental problems in the Monadnock Region. The approach used in the study of such problems will be one of a scientific nature. The course is specifically designed for those students who do not intend to further their education beyond high school.

Objectives:
1. Understanding that man is part of nature rather than apart from nature.
2. Understanding of the role that the individual can play in reversing the trend toward an "environmental crises".
3. Understanding that science is a method that aids in the solution of environmental issues.
4. Knowledge that all people are responsible for the existance and solution of environmental problems.
5. The importance of each individual in maintaining equilibrium with the environment.
6. Concern stirring people to solve environmental problems.

Project activities:
1. Six-week writing session to produce the manual listed below:
   Keene Environmental Science Project - by Richard P. Tremblay, Randall H. Morse, and David P. Olson.

2. Implementation of this course of study in four 9th grade general science classes. September 1971.
3. Teacher mid-year evaluation of course activities was held in February 1972.
4. Since 1972 this course was revised and an "environment career" dimension was added to the program. This revised edition has been used with considerable success since 1972.

Future plans:
1. Grade 10 Environmental Life Science has been completed, but not yet implemented as yet.
2. A long range plan is to have an advanced senior seminar available to academically inclined students. It is my hope that this will not only cut across science disciplines, but English and Social Studies as well.
3. A three-day field workshop has been planned for the coming summer whereby teachers can travel and camp within a 100 mile plus radius of Keene. It is hoped that during this workshop much can be done relative to collecting materials and creating new instructional materials.

-R. P. Tremblay

PROGRAM TITLE: ENVIRONMENTAL EDUCATION

DIRECTOR: Mr. William R. Kievit, Assistant Superintendent, Curriculum and Instruction, Administration Building, North Stanwick Road, Moorestown, New Jersey 08057.
(609)235-4000 Ext. 289

Objectives:
To increase student awareness of the ways in which each organism adapts to its environment through an examination of genetics, ecology, entomology and zoology.

The program includes grades K-12 and is interwoven with lessons in science, social studies and health education.

The cornerstone of the program is our membership in the Conservation and Environmental Studies Center in Whitesbog, New Jersey. C.E.S.C. has helped us through demonstration lessons, surveys of our educational sites, and day visitations to Whitesbog.

History:
For all practical purposes our existing environmental education program dates back four years to the beginning of our association with the Conservation and Environmental Studies Center. Since that time our program has evolved to its present state through the efforts of our staff members in cooperation with the members of the C.E.S.C. staff.

Problems:
The most persistent problem we have encountered is to get maximum use from demonstration lessons provided by C.E.S.C. staff members. Teachers tend to regard demonstrations as guest lessons rather than as teacher in-service. Another problem we encountered was a prohibition on field trips as a consequence of the energy shortage which curtailed our day visitations to Whitesbog.

Future plans:
We are planning an in-service program to help elementary staff members make use of our site surveys completed last year at our four elementary locations. Also, we are planning a ten session in-service course to assist staff members in making use of the woodland, marine and urban resources available to us.

-Dr. Bernard D. Shapiro
Director, Curriculum and Instruction

PROGRAM TITLE: POLLUTION CONTROL EDUCATION CENTER

DIRECTOR: Charles F. Murphy, Pollution Control Education Center, Union Township Public Schools, 2369 Morris Avenue, Union, New Jersey 07083.

Overview:
A total classroom instructional program in pollution control education for elementary, junior high, senior high, and adult education is being produced through the Pollution Control Education Center. The program has been designed to develop students' interest in the wise use and preservation of the biosphere and to give them an understanding of the threat that an industrialized society poses to the balance of the ecosystem.

The project staff has completed its fourth year of work under a Title III grant to write and produce the program. The materials for grades 1 through 9 are being published commercially by Webster/McGraw-Hill for national distribution. Materials for grades 10, 11, and 12 are in preparation. Unit content is varied and includes comprehensive coverage of the topics of solid waste and sewage treatment, and air, water, thermal, marine and seashore, and urban pollution. In other units pupils are actively involved in the critical environmental problems of open lands, wildlife, wetlands preservation, energy conservation, resource management, and community response - all presented in scientifically accurate and socially responsible settings.

In developing the materials, extensive classroom teacher input and field testing have been emphasized to assure maximum effective "teachability" of the materials. A microwave television system has been used for program modification, field testing, and in-service staff training.

Each multi-media instructional kit engages a class in a variety of pupil centered, hands-on, problem solving activities which involve students in practical decisions on the appropriate responses they can make as citizens to solve environmental problems. The kits include imaginatively illustrated student booklets which relate new ideas to the students' own experiences. Student investigations provide pupils with the opportunities to have first hand experience with pollution and pollution control processes. These experiences are described on spirit-masters, experiment sheets, and activity cards so that a teacher may readily individualize instruction to meet a class member's specific needs and interests. The materials in each kit are designed to be taught as a one or two week unit.

Audio-visuals enable pupils to observe phenomena which cannot be duplicated in the classroom. Filmstrips and filmloops, overhead transparencies, and audio cassettes are included in each kit to aid class discussions of important ideas.

A comprehensive teachers' guide enables a teacher to handle the program without specialized training. The guide coordinates all of the elements of a kit. The guide contains an outline of the basic objectives of the unit in terms of "attitudes and values, knowledge and skills." A chart is provided for scheduling the unit's work. Tests based on the material covered in the unit's work are included for appropriate grade levels.

The program is appropriate for inclusion in regular science, health, and urban studies programs as well as for instruction in environmental science. The program is designed for use by the regular classroom teacher. The program's target population is the nationwide elementary and secondary school student body.

Goals, Evaluation Design, and Results:
In accordance with ESEA, Title III requirements, the project staff specified development goals, selected evaluation designs, and evaluated progress toward the goals. It is anticipated that schools with similar populations can achieve the same results.

Goal No. 1:
To develop students' knowledge of the biosphere and the ecological consequences of industrialization. Students will understand the social and legislative processes that can be used to effect action in pollution control.

Students who participate in the program in the first year will show an increase in knowledge measured by pre-tests and post-tests significant at the .05 level when compared to scores of control groups.

For each unit of the program experimental and control classes are set up and given pre-tests and post-tests designed by the project staff. Results to date have shown that the post test scores as compared to the pretest scores of the experimental groups were all significantly higher at the .05 level or better. In comparing the post test scores of the experimental groups to those of the control groups, again there has been in every case a significantly higher gain in favor of the experimental classes. The units have been found effective in teaching the content that they were designed to teach.

Goal No. 2:
To inform New Jersey citizens about the program and its evaluation. To offer to interested laymen and educators the opportunity to observe lessons in pollution control being taught, examine the materials, and obtain training in their use.

Evaluation will be carried out through responses of consumer districts to questionnaires on the use and impact of training.

District Adoption Plan:
The units are being incorporated into the district's regular program of studies as they are ready. The cost of the research and development to continue the work of the center will be borne by the curriculum departments within the school district. The royalties from the sale of the units are being used for this purpose as well.

Statewide Dissemination Program:
The project staff was funded for 1973-74 to inform New Jersey citizens about the program and its evaluation. Visitors are welcome to the Union Township public schools to see the lessons being taught and examine the materials. During the summer of 1974 a workshop was held in Union for persons who wished to be trained in the use of the materials.

-C. F. Murphy

PROGRAM TITLE: RESOURCE MATERIALS DEVELOPMENT (PL 91-516)

DIRECTOR: Barry W. Jamason, New York State Education Department, Room 326, Washington Avenue, Albany, New York 12234. (518)474-79
(518)474-7989

The environmental education activities of the New York State Education Department will now be supplemented and enhanced by virtue of a $46,590 grant from U.S.O.E. under the Environmental Education Act.

The objectives of this funded project, Resource Materials Development 7-12, are the following: (1) to develop a model for student identification of local (and state, national, and international) environmental problems; (2) to deal with these problems in the context of the appropriate segment of the instructional program; and (3) to hypothesize solutions, trade-offs, or alternatives. This process as developed and refined is to be a project product. The specific procedures and activities will become instructional units to be integrated into the curriculum.

The above procedure, and the instructional units generated by it, will become a central part of this Department's recommended environmental education program for elementary and secondary schools.

A culminating activity of the project will be a prototype workshop to introduce these procedures and materials to a sampling of teachers. Future plans include a continuation of a modified workshop series to promote the use of environmental curriculum development ideas and materials through increased familiarity with them as tested methods and their results. A tentative plan is to seek Federal funds to assist in providing these workshops, while State funds would be requested to continue regular advisory services in environmental education to schools of the State.

-B. W. Jamason

ERIC DOCUMENTS:

1. Handbook of Environmental Education Strategies. ED 066 298
2. Outdoor Education: A Guide for Resident Programs. ED 067 202
3. Man Builds, Man Destroys. ED 068 338
4. Coping with the Problems of a Technological Age, Part I. ED 084 160
5. Man Builds, Man Destroys (1973 Expanded Version). ED 086 509
6. Data on the Human Crises: Teacher's Guide. Data on the Human Crisis: A Handbook for Inquiry. ED 092 417
7. People and Cities: The Environment and Society. Adult Basic Education. ED 092 675
8. Coping with the Problems of a Technological Age, Part II. ED 093 623
9. Living Within Our Means: Energy and Scarcity. Environmental Education Instructional Activities K-6. ED 093 673
10. People and Cities. The Environment and Society. Adult Basic Education. SE 017 819
11. A Place to Be, Filmstrip Manuel. The Environment and Society. Adult Basic Education. SE 017 820
12. Living Within Our Means: Energy and Scarcity. Environmental Education Instructional Activities 7-12. SE 018 625

PROGRAM TITLE: ENVIRONMENTAL EDUCATION CURRICULUM MATERIALS

DIRECTOR: Dr. William DeLucia, East Syracuse/Minoa School District #1, Administration Building, 407 Fremont Road, East Syracuse, New York 13057.

ERIC DOCUMENTS:
1. East Syracuse/Minoa Schools Environmental Education Materials, Elementary Package, Grade One-Five. SE 018 113
2. East Syracuse/Minoa Schools Environmental Education Materials, Middle School Package, Grade Six-Science and Social Studies. SE 018 114
3. East Syracuse/Minoa Schools Environmental Education Materials, Middle School Package, Grade Seven-Science. SE 018 115
4. East Syracuse/Minoa Schools Environmental Education Materials, Middle School Package, Grade Eight-Social Studies. SE 018 116
5. East Syracuse/Minoa Schools Environmental Education Materials, Middle School Package, Middle School Crossover Units. SE 018 117
6. East Syracuse/Minoa Schools Environmental Education Materials, High School Package. SE 018 118

PROGRAM TITLE: ENVIRONMENTAL ACTION COALITION, INC.

DIRECTOR: 735 East 49th Street, New York, New York 10017.

ERIC DOCUMENT:
Environmental Education Program. Final Report. SE 018 109

PROGRAM TITLE: PROJECT CREATE

DIRECTOR: Mrs. Mary P. Nixon, Edenton-Chowan Schools, P.O. Box 206, Edenton, North Carolina 27932. (919)482-4436

The scope of Project Create encompasses the study of natural resources peculiar to Chowan County; the enhanced livelihood of local residents as results of vocation related directly or indirectly to these resources; the conservation and management of these resources.

The target population is grades K-4 at White Oak School and 5-6 at Chowan High School.

Objectives:
1. To promote among the professional staff at White Oak School and Chowan School who will be working with the project, knowledge, and positive attitudes about the environment and environmentally oriented careers.

2. By the end of the project (May 30, 1975), participating teachers will possess significantly greater (.05 level) knowledge about regional and local environmentally oriented careers as determined by pre-post administrations of the Environmental Occupations Knowledge Inventory developed by the Director of Instruction.
3. By the end of the project (May 30, 1975), participating teachers will possess significantly greater (.05 level) positive attitudes about the environment and environmentally oriented careers as determined by pre-post administration of an Environmental and Occupational Attitudes Scales developed by the Director of Instruction.
4. To promote in students in grades K-4 at White Oak School and grades 5 and 6 at Chowan School knowledge and positive attitudes about the environment as well as regional and local environmentally oriented careers.
5. By the end of the project (May 30, 1975), participating White Oak students will possess significantly greater knowledge about the environment as determined by pre-post administration of the Environmental Knowledge and Concepts Inventory (Primary form) developed by the Director of Instruction.
6. By the end of the project, participating students will possess significantly greater positive attitudes about the environment and environmental careers as determined by pre-post administration of the Environmental Occupational Attitude Scale (Primary Form) developed by the Director of Instruction
7. To provide students with career awareness and environmental knowledge and skills which will significantly improve their performance in science and social studies and promote social and personal adjustments relative to avocational interests and social living.
8. By the end of the project, participating students will significantly improve their achievement in science as measured by pre-post administration of the Stanford Achievement Test.
9. By the end of the project, participating students will be able to select and profit from environmentally oriented leisure time or avocational activities as measured by verbal comments of students.

The objectives of the program are being met through extensive involvement of both school and community. A concerted effort to focus students' attention on both human and natural resources of the county was undertaken at the inception of the project.

Utilization of Community Resource Persons:
Businessmen, professionals, laymen, upon contact, readily agreed to lend their expertise to the project by serving as consultants to teachers and students; by opening the doors of their firms and industries for visitations; providing specimens and by coming into the classroom and engaging in free interchange with students and teachers. Each in his own sphere, has contributed to the accomplishment of the objectives.

Activities:
Great value is placed on field trips designed to increase students knowledge of how resources of the county and Albemarle region are utilized, conserved and managed. Attention is also focused on the number of careers in the area which involve processing and managing our resources.

Through simulation games, students are engaged in decision making, judging, and evaluating.

A nature trail provides a wealth of experiences, much food for thought, and conversation as students grow in knowledge of the natural vegetation and animal life of our county.

A well equipped laboratory provides a welcome place to go to observe specimens and test hypotheses.

Research, record keeping, oral and written communication and demonstrations enrich the language arts program. A K-6 curriculum has been developed.

History:
A needs assessment was conducted by the White Oak School Faculty. Data were collected and a test given to teachers and students. Findings stated that science was a major weakness in the school. A committee of three teachers explored possible solutions for the problem. It was decided that the natural resources in the local environment could serve as a focal point for a vitalized science/social studies career-related program. The teachers, principal, and superintendent worked together to develop the objectives, scope, sequence, and activities for Project CREATE.

At the completion of the first year, a total of 45 resource persons had been utilized and test scores showed an increase in knowledge in the areas of science and social studies. Attitudes by the children and teachers have been improved.

The project has been extended to grades 5 and 6 for the second year. The teachers were involved in a week long workshop designed to develop learning activity packages for each grade level in the area of environmental science and career awareness. The teachers are presently engaged in preparing their classes to become involved in the LAP's.

An exhibition of slides depicting a capsule of Project Create was presented to the Education Development Council of White Oak School, the Chowan High School faculty and the North Carolina Conference of Innovations, for the purpose of disseminating knowledge, encouraging innovations and creating an awareness of what is being done, what can be done, what should be done in environmental education.

Currently the Perquimans County and Gates County Schools are planning to implement Project Create. Presentations have been made at the North Carolina Science Teacher Association's annual meeting regarding the project.

Problems Encountered:
A state of apathy toward Project Create by a small percentage of the White Oak Faculty was an initial problem at the inception of the program. However, through a series of jam sessions during which enthusiastic teachers related exciting experiences and told of the eagerness of students over ventures in which they were engaged, an emotionalized attitude toward the project was created which permeated the entire faculty.

Future Plans:
1. Assimilation of the program throughout the school system with local monies.
2. Dissemination of the programs consultant assistance and in-service training to interested public schools or higher education institutions upon request.

Publications:
1. A newsletter, Out Reach, has been published.
2. The project was evaluated at the end of its first year, 1973-1974, by the White Oak Faculty and by the Division of Development of the N.C. State Department of Public Education.
3. Summative evaluation revealed significant gains in the area of science and social studies concepts.
4. Project evaluation is continuing during the 1974-1975 school year.
5. Curriculum materials have been produced.

-M. P. Nixon

PROGRAM TITLE: ENVIRONMENTAL STUDY AREAS

DIRECTOR: James B. Annas, Caldwell County Schools, Granite Falls Elementary School, Granite Falls, North Carolina 28630. (704)396-3326

Objectives:
1. To teach environmental concepts.
2. To make use of environmental facilities.
3. To develop curriculum experiences in environmental education.
4. To involve the community.

The environmental study areas in Caldwell County are designed to be used by the entire population. Emphasis is places on students K-12 in the public schools and 13-14 at the community colledge level. Adults are also encouraged to use the study areas. Activities include interdisciplinary experiences at all grade levels.

History:
Although traditional science programs have been well developed in Caldwell County, members of the school staff and community leaders felt that more needed to be done in environmental education. They also felt that students needed more "hands-on" experiences in science. From 1968-1971 efforts were made in the Granite Falls area to develop nature trails. The local high school, with no outside funding, carried on a forestry conservation project in the area. In 1971 the project director for the county developed a project for the area. The project for $30,000 was funded through the North Carolina SEES (State Experimentation in Educational Development) Program. Under the program a series of nature trails was developed, specialized equipment and materials were purchased, a full-time director was employed. Major developments were made in curriculum and all county schools became involved in environmental studies. In 1973, another environmental project was funded for Caldwell County through the North Carolina Environmental Education Act of 1973. Using an appropriation of $9,000, a second environmental project was developed at Collettsville Elementary School.

Present Activities:
The Caldwell County School System is still operating two environmental study areas. The areas include nature trails, weather stations, observation areas, outdoor classrooms, and specialized equipment for air, water, and soil studies. The study areas are open to the public, civic clubs, and organizations such as the Boy Scouts.

Problems Encountered:
No major problems have been encountered in the project.

Future Plans:
Plans for the future include the continued use and development of the two existing study areas. Two other sites are being considered for possible development.

Publication Produced:
Trail guides have been produced for each study area. Dr. Marie Churney has written two environmental units for use in the school system. One is on "Photography" and one is on "Vacant Lot Ecology." Neither is copyrighted. Both are available on a limited basis to interested individuals.

-Mrs. Caryl B. Burns
Public Information Director
Caldwell County Schools

PROGRAM TITLE: MURPHY HIGH SCHOOL NATURAL TRAIL

DIRECTOR: Mrs. Geraldine Meadows, Murphy High School, Murphy, North Carolina 28906. (704)837-2426

The agriculture and biology departments are working together in a continuing effort to develop the natural trail. The objective of this program is to provide a living laboratory, an outdoor classroom, for biology and agriculture students.

The school was constructed on a 130-acre tract of land in 1957. The road chosen for the natural trail was previously an old farm road. It covers a distance of about one mile and is located on the school property. The trail is and always has been available to any class including the elementary school students. In the future we hope the trail will be enjoyed by the public.

We plan to identify, classify, and label the plants along the trail. Other stations of interest will be described. This information is to be available in the form of a natural trail guide booklet. Drainage ditches will be reopened, the pond reconstructed, and bridges will be rebuilt across streams. A preserved and labeled specimen of each plant listed in the booklet will be kept in the biology department.

The chief problem encountered has been vandalism. Motor bikes have also been a problem. The Cherokee County Board of Education has been cooperative in allowing us to use chains across the entrance.

Dr. Jonathan M. Wert, Environmental Education Specialist with TVA, has evaluated the trail and has been helpful in providing us with suggestions for future improvements.

It is our hope that a tour of this trail will be a meaningful experience for everyone.

-G. Meadows

PROGRAM TITLE: ENVIRONMENTAL EDUCATION, STATE OF NORTH CAROLINA

DIRECTOR: Paul Taylor and Clint Brown, State Department of Public Instruction, Raleigh, North Carolina 27611. (919)829-3694

ERIC DOCUMENTS:
The following documents have been received and announced through the ERIC System:
1. Status Report on Environmental Education Activities in North Carolina. ED 066 307
2. The Conservation of North Carolina's Natural Resources. ED 079 098

3. Ecological Investigation, Curriculum Guide. ED 079 099
4. Water Quality Control, Curriculum Guide. ED 079 100
5. Environmental Education: Preservice Preparation of Teachers. ED 082 998
6. Environmental Education: Strategies for Wise Use of Energy. ED 092 376
7. Population. Grades 7-12. Environmental Education Instructional Unit. Final Edition. ED 092 377
8. Pollution. Environmental Education Instructional Unit. Final Edition. ED 092 378
9. Natural Resources. Environmental Education Instructional Unit. Final Edition. ED 092 395
10. A State General Master Plan for Developing Environmental Education Programs in North Carolina. ED 093 675

PROGRAM TITLE: AMERICAN INDIAN CURRICULA DEVELOPMENT PROGRAM (AICDP)

DIRECTOR: Mrs. Mary Lou Aberle, 3315 A. Airport Road - Building #35, Bismarck, North Dakota 58501. (701)255-3041

Program Objectives:
The major objective of our project is the development of Plains Indian social studies materials relevant to the needs of all Indian and non-Indian students in grades K-12 of North Dakota schools. A secondary objective is conducting teacher-training appropriate to promoting effective implementation of the curriculum within the classrooms. A by-product of our work is the awakening of greater sensitivity and concern among our children towards the environment, as a result of learning the importance of the elements of nature to the various Plains Indian tribes.

To date, a comprehensive kit of curriculum has been produced for grade levels kindergarten through five. Our project has disseminated these materials without charge into all the reservation schools in the state and into three major city school districts. Both large community seminars and smaller in-service educator training sessions have been conducted prior to this dissemination.

Having received permission to offer the materials for sale, we are currently advertising their availability to the remainder of the public and private schools in the state. At the same time we are continuing our curriculum development at the junior high school level, with senior high instructional materials scheduled for production beginning early in 1975.

Program History:
After receiving funding from several private foundations and federal government agencies, five field offices were opened on each of the reservations in North Dakota. Totally staffed by

Native American personnel, it was the function of these offices to gather authentic information relative to the various tribes which have inhabited the state. This was done by tape-recording conversations with elderly Indian people, translating this information into English and then typing it for use in our central office.

With the aid of the North Dakota State Department of Public Instruction, Curriculum Specialists, and Indian and non-Indian educators, parents and students, the research data was developed into an effective educational format. All the curricula rough drafts were then returned to each reservation where Indian Culture Committee members critiqued and evaluated them. After additional revision and endorsement by the State Department; final printing occurred.

Financial difficulties forced eventual closing of the field offices after roughly 80% of the necessary research for completing the curriculum had been obtained. When it was learned that the State Department was unable to fulfill its committment of disseminating the materials, the burden of this task, together with the necessary teacher-training, fell upon the AICDP.

The project is attempting to secure local involvement and financial support through a campaign to publicize our work throughout the state. Our Indian people are very pleased and excited about the curriculum; both educators and students are receiving it enthusiastically. Our greatest area of concern, therefore, is in maintaining the project until the program goals have been totally fullfilled.

Environmental Aspects:
A small portion of our total project was funded with a grant through the Office of Environmental Education. By this means it has been possible to produce curriculum directly related to the plant and wildlife of the region, emphasizing their fundamental importance to the Indian way of life. Both heavy-duty curriculum cards and slide-tape programs were developed specifically to demonstrate the significance of nature to the food, clothing, medicine and religion of our Plains Indians.

Indian people traditionally lived in direct harmony with the environment. They revered and respected every aspect of nature. This is a major theme pervading all of the materials. Therefore, the entire curriculum is oriented toward environmental education.

Our AICDP curriculum is being utilized nationally as a resource by both Indian and non-Indian groups who are developing curriculum. Local colleges and universities are including it in their training of future teachers. It is being recognized as a model from which other organizations may obtain ideas and support.

Problem Areas:
Raising sufficient funding to maintain the project has been the primary concern. Proposals have been written to federal funding

sources and to private foundations. These met with little success. Personal visits to foundations proved to be more satisfactory. A successful appeal was made to the State Revolution Bicentennial Commission. Finally, through visits to local organizations and businesses the project is beginning to receive additional publicity and the involvement of the community which is so vital to achieving its goals.

Staffing has also been a problem. The limited number of staff positions which were funded were inadequate to conduct the program effectively. Appeals were made for voluntary help. Through the University Year in Action Program, we received supplementary staff for work in writing and illustrating our materials. In addition the State Employment Service funded a full-time staff postion through their CETA Program.

Future Plans:
The American Indian Curricula Development Program plans to continue work for the next year on developing social studies materials through the senior high school level. Concurrently, it is expected that the program will expand its staff and facilities to the degree that Indian curriculum will also be produced in adult vocational education and in child development materials.

Copyright of all materials will be retained for a minimal five-year period, during which evaluation and revision will occur. Eventually all AICDP curriculum will be placed in public domain with the most widespread national dissemination promoted. Being one of the first such curriculum projects in the country it is anticipated that guidelines relative to Indian studies curriculum will be produced by the project which may be utilized nationally as models for similar Native American programs.

Publications of the Project:
The following is a complete listing of the kindergarten through grade five Plains Indian social studies curriculum produces by the American Indian Curricula Development Program:

1. Units (printed on 8½ x 11 heavy duty cards): Family; Dwellings; Education; Foods; Community; Values; Animals Series I; Animals Series II; Animals Series III; Birds.
2. Booklets: Family; Dwellings; Community; Education; Naming of the Moons by the Dakotas; Foods; Values.
3. Overhead Transparency Originals.
4. Teacher Manual - Grades K-5.
5. Cassette Tapes.
6. Slide-Tape Programs: Indians and Time; Indian Communities; Indian Families; Indians and Big Game Animals; Indians and Animals Indian Education; How Indians Used Shrubs; Indians Relationship to Summer Wildflowers; Mammals Useful to the Indians; Indians and Fur-Bearing Animals; Little Brave Bear and the Animals; The Indians Friend - The Buffalo; Foods from Friends; Indian Dwellings; Waheenee (Values); Trees Used by Indians; Indians and Early Summer Wildflowers - II; Birds of Importance to Indians; Foods of Early Plains Indians - II.
7. Plains Indian Coloring Book.

Indian doctoral candidates from the University of North Dakota completed a pilot evaluation of the K-5 curriculum as used in the Fargo, North Dakota school system. They found the materials to be statistically effective in improving the attitudes and factual content knowledge of non-Indian school children in grades one through four where it was tested.

One kit of the Plains Indian Social Studies curriculum for grades K-5 (excluding the tapes and slide presentation available on a loan basis) may be purchased by sending $100.00 to:

The American Indian Curricula Development Program
3315 South Airport Road
Bismarck, North Dakota 58501

Sale of the materials will be reprogrammed into further curriculum development and reprinting.

-M. L. Aberle

PROGRAM TITLE: POPULATION TEACHER IN-SERVICE COURSE: "WORLD POPULATION CRISIS"

DIRECTOR: Judith Schultz, Raymond Walters College, University of Cincinnati, 9555 Plainfield Road, Cincinnati, Ohio 45236. (513(683-6049 Ext. 252

Objectives:
1. To disseminate factual information concerning the subject of population.
2. To develop an awareness in participants of the world population problem and options open to mankind.
3. To provide interdisciplinary and holistic approach toward understanding the determinants and consequences of population growth and the population/environment dilemma.
4. To develop an understanding of the relationship between personal and societal actions in the short and long term.
5. To create curricular applications within one's own disciplines, and among several at the intermediate, junior, and senior levels.
6. To demonstrate innovative teaching approaches as applied to population/environment education.

Target group: 35 junior high and secondary school teachers of public, private and parochial systems (also administrators).
Activities: Team-taught graduate course sessions, lecture, audio-visuals, role-playing, gaming techniques, self-paced learning, field activities, curriculum design.

A one-day workshop (late afternoon/evening) on Pop-Ed. for 100 local teachers illustrated need and shortage of information on and experience in dealing with this subject. A proposal for a graduate, credited in-service course in Pop-Ed. was submitted to the O.E.E. and approved.

We are currently reinforcing teachers of the aforementioned course with Pop-Ed. materials upon request and other teachers. Pop-Ed. is taught here now as a part of the existing courses.

The program whould have been expanded to elementary or even intermediate and reoffered, as first attempt could only include 35 teachers. The Office of Environmental Education has not been willing to fund that sort of extension project. Poll of graduates of programs shows all are now infusing Pop-Ed. into existing courses successfully, and have a vast reservoir of population/environmental resources at their disposal.

We would like to offer another Institute or plan a program for State Directors of Environmental Education on Pop-Ed.

-J. Schultz

PROGRAM TITLE: ENVIRONMENTAL CURRICULUM

DIRECTOR: Dennis M. Wint and Eugene A. Knight, Longfellow Elementary School, 35200 Stevens Boulevard, Eastlake, Ohio 44094. (216)946-5000

Goal:
Environmental Curriculum is oriented twoard the goal of assisting in the development of the environmentally literate citizen who is capable of critical thought about environmental concerns, knowledgeable of the bio-physical and socio-cultural environments and the related problems, personally repsonsible for environmental changes, aware of alternatives available for solving problems and is motivated towards maintaining quality environments and changing undesirable environments.

Objectives:
1. To provide an information package which consists of environmental education curriculum materials for grades K-12, and guidelines, recommendations, and procedures to implement the program.
2. To provide an in-service training program to provide local schools with practical experience and training for teachers and school administrators.
3. To provide consultant services for school districts implementing the environmental curriculum materials.

Twelve school systems in Ohio received mini-grants to implement the environmental curriculum materials developed by the Center for the Development of Environmental Curriculum, also reported in this Directory. The twelve school systems are:
1. Bath Local Schools - Lima
2. Beavercreek Local Schools - Xenia
3. Blanchester Local Schools - Blanchester
4. Cambridge City Schools - Cambridge

5. Columbus Grove Local Schools - Columbus Grove
6. East Liverpool City Schools - East Liverpool
7. Holgate Local Schools - Holgate
8. Miami Trace Local Schools - Washington Court House
9. Napoleon City Schools - Napoleon
10. Penta County Joint Vocational School - Perrysburg
11. Riverside Local Schools - Degraff
12. Toronto City Schools - Toronto

Each participating school system has a program coordinator who organizes the effort within the school, and serves as a liaison between the teachers and the consultants. In order to be a recipient, schools were required to guarantee teacher participation at all levels for which curriculum materials were available. Participation numbers approximately 475 teachers.

The major activity of the project includes the training and consultation services rendered to the participating school districts by the two project consultants.

Each school system received a mini-grant from Ohio ESEA Title III through a program entitled "Adaptation Projects." The monies were to purchase needed materials and supplies, to pay substitute teachers or to pay participating teachers a stipend, and to hire consultant services to encourage implementation of the environmental curriculum.

Historical Profile:
The Center for the Development of Environmental Curriculum (CDEC) was initially funded as an ESEA Title III project on August 15, 1971, for the purpose of developing an interdisciplinary environmental education curriculum for grades K-12 for Ohio schools. That project was closed out August 15, 1974.

Current Activities:
Current activities are oriented towards implementing the K-12 environmental curriculum into the twelve school systems previously identified. Activities include providing workshops for teachers and school coordinators and consultant services as requested by individual teachers.

Unique Problems:
None from the standpoint of program implementation. The only problem of concern is the one of extensive travel among participating school systems. Because of the widespread nature of the systems, nearly as much time is spent traveling to and from schools as is spent in consultant and workshop time.

Future Plans:
Plans include the investigation of funds to further implement the environmental curriculum into additional school systems.

Publications:
The publications implemented by this project are those developed by the Center for the Development of Environmental Curriculum.

-D. Wint, E. Knight

PROGRAM TITLE: ENVIRONMENTAL EDUCATION: CURRICULUM, INFORMATION, AND TRAINING

DIRECTOR: Dennis M. Wint, Longfellow Elementary School, 35200 Stevens Boulevard, Eastlake, Ohio 44094. (216)946-5000 Ext. 358

Objectives:
1. To implement the environmental curriculum for grades K-12, developed by the Center for the Development of Environmental Curriculum, into selected school districts in Ohio. The implementation effort will consist of a series of workshops to inform school administrators and teachers with methods and techniques for implementation, and to provide them with a background as to the objectives and content of the curriculum.
2. To develop and validate evaluative instruments which will measure the impact of the environmental curriculum materials on students. Both cognitive and affective instruments will be developed corresponding to the levels of the curriculum design.
3. To measure, using the cognitive and affective instruments at the various levels, the degree of impact the environmental curriculum materials has on students from the twelve school districts involved in the program.

The twelve Ohio school systems involved in this program are those named in the companion project, "Environmental Curriculum", Eastlake, Ohio.

This project is funded by the U.S. Office of Education for the period of July 1, 1974 to June 30, 1975. It operates closely with the "Environmental Curriculum" project which is funded by Ohio ESEA Title III. The curriculum materials implemented through this project are those developed by the Center for the Development of Environmental Curriculum. Both projects are also reported in this Directory.

Historical Profile:
Same as that presented for the "Environmental Curriculum" project.

Current Activities:
At present, the environmental curriculum is being implemented in the twelve schools previously mentioned. Implementation is taking place with the assistance of consultant services rendered to schools in the form of workshops for participating teachers and school coordinators, and through consultation with individual teachers.

Development of the evaluative instruments is underway. The instruments will be in both the cognitive and affective domains. Testing will take place at each level for which materials are available. The instruments are expected to be field validated and ready for testing by about March 1, 1975.

Testing to measure the impact of the curriculum materials will take place approximately between March 10-14, 1975 in specific classrooms.

Teachers involved in the implementation program will serve as an experimental classroom. Paired teachers, not included in implementation, will serve as control classrooms. Scores from the experimental and control students will be analyzed by the t -test using a 0.05 confidence level.

Unique Problems:
The most significant problem is the one of developing and validating the instruments which will accurately measure the impact of the curriculum materials. Although many efforts towards the development of suitable instruments by many projects have been attempted, few instruments are available which are suitable to the needs of this project.

Future Plans:
Should the evaluation effort indicate the curriculum materials have a significant impact on students, another grant request will be submitted to the U.S. Office of Education to further the implementation effort into additional school systems.

Publications:
The publications implemented and evaluated by this project are those developed by the Center for the Development of Environmental Curriculum.

-D. Wint

PROGRAM TITLE: ENVIRONMENTAL EDUCATION

DIRECTOR: Burt Spice, Project Manager, Toledo Public Schools, Manhattan and Elm Streets, Toledo, Ohio 43608.
(419)729-5111 Ext. 262

The goals of Environmental Education in Toledo are to develop in students:

1. An awareness, understanding and concern for the environment with its associated problems and,
2. The knowledge, skill, motivation and commitment to work toward solutions to these current and projected problems.

Major program objectives for the 1973-74 year included:

1. Provide extensive teacher in-service training activities.
2. Integrate environmental education concepts into existing curriculum areas (especially science and social studies).
3. To improve dissemination of environmental education information and materials throughout Toledo Public Schools and the community.

Major accomplishments during the 1973-74 year included:

1. Developing and implementing a comprehensive teacher in-service program including:
    a. Individualized assistance to teachers in 11 target schools which were served on a one day/week basis by by a consultant trained in providing environmental education assistance.
    b. Workshops open to all teachers and administrators in Toledo Public Schools as an orientation to environmental education action model as designed by environmental education advisory committee and a follow-up workshop focusing on specific activities and environmental encounters that are appropriate for use at various grade levels.
    c. Mini-workshops held for staff members and students at interested schools. These workshops were individually designed to meet the needs and interests of the teachers and students in each particular school. (Examples include workshops on orientation to environmental education, school site development, use of values clarification techniques, use of skill development activities, etc.)
    d. Offering graduate credit extension courses from local universities. An "orientation to environmental education" course was offered winter and spring terms and a follow-up advanced environmental education independent study was offered spring term.

2. To assist in the integration of environmental education concepts into the existing K-12 curricula a paper outlining environmental concept categories and component concepts was developed and reviewed by the Environmental Education Advisory Committee.
3. Efforts to improve dissemination of environmental education information and communication within the Toledo Public Schools and community include:
    a. Publishing an environmental education newsletter to be distributed throughout Toledo Public Schools and to interested community organizations and indivuals.
    b. Expansion of environmental education clearinghouse function with more environmental education materials, games, test kits, AV materials, etc. being available for use by teachers and students in the Toledo Public Schools.

c. Developing and publishing a pamphlet explaining environmental education and the Toledo Public Schools environmental education program to be distributed to school administrators, teachers, parents, as well as interested community persons or groups.

4. Promoting and organizing community wide Earth Week activities during the week of April 21-27. Activities included involvement display of environmental education projects (plantings, beautification projects, etc.), school wide poetry, song and photo contests, involving representatives of interested community organizations and businesses and industry to meet and discuss environmental issues with students.

Major program objectives for 1974-75 include:

1. Continuation of comprehensive teacher in-service training.
2. Development of additional resource packages for use by teachers.
3. Integration of Toledo Public Schools Environmental Education and Outdoor Education Programs.
4. Continue to improve dissemination of information and communications within Toledo Public Schools and the community.

In-service Training:
During the course of the 1974-75 year we intend to provide continued in-service activities.. Two or three major system-wide workshops will be offered to all teachers and administrators in the Toledo Public Schools focusing on skill development, values clarification, and resources and activities available which are appropriate for various grade levels or subject areas.

Ten part-time consultants trained in environmental education at the University of Michigan and Bowling Green State University will serve the program. Eight of the consultants will be assigned to target schools (not previously having had consultants) and will work on a one day/week basis with teachers in that building. Two of the consultants would spend one day/week assisting the full time environmental education coordinator work with teachers in buildings not assigned a consultant. Mini-workshops in individual buildings and graduate extension courses and independent study courses will remain as an integral part of our in-service training design.

Development of additional resource packages to assist teachers:
During the summer of 1974 teams of teachers, administrators and students developed the following resource packages for use by teachers at the early elementary K-3, latter elementary 4-6, junior high 7-8, and high school levels:

1. Problem solving, skill development activities containing appropriate student activities to assist them in developing skills in the following areas: problem and issue definition;

data collection, organizing and analyzing; generating alternative solutions and developing, implementing and evaluating plans of action.
2. Values clarification strategies containing appropriate strategies to assist students at various levels in becoming more aware of and clarifying their personal values.
3. Available resources containing annotated listings of appropriate resources available including: local and neighborhood field trip possibilities, human resources, AV materials, gaming simulations, environmental test kits, periodicals books, etc. The above resource packages will be published and distributed to every school in Toledo Public Schools.

Integrating Environmental Education and Outdoor Education Programs:
As part of the Toledo Public Schools Outdoor Education Program, 6th grade students from schools throughout the system are involved in a one week camping program at the YMCA Storer Camps near Jackson, Michigan.

In the fall of 1974, all of the Outdoor Education camp personnel took part in a training course designed to provide them the training necessary to implement the Outdoor Education share of the Environmental Education program. During this two week training course, the content of current outdoor education class offerings at camp were reviewed and the activities recommended by the Outdoor Education/Environmental Education Study Committee were integrated into the camp curriculum.

Personnel from the Outdoor Education and Environmental Education programs will provide system wide and mini-workshops to assist teachers in handling the pre-camping and post-camping Environmental Education activities.

Improving Communications and Information Dissemination:
Efforts include continuation of Environmental Education newsletter publication, and a full time Environmental Education coordinator and two part-time consultants to meet and work with interested teachers, administrators, students, parents and community persons.

-Burt Spice

PROGRAM TITLE: CONSERVATION PROBLEMS IN OUR COMMUNITY

DIRECTOR: Coyle Smith, P.O. Box 368, Pawnee, Oklahoma 74058.
(918)762-2660

Program has been discontinued because of fuel shortage and increase in cost of transportation.

-C. Smith
Principal

PROGRAM TITLE: OUTDOOR CLASSROOM: INTERDISCIPLINARY ENVIRONMENTAL EDUCATION

DIRECTOR: H. Joe Duncan, Curriculum Director, Tahlequah Public Schools, Tahlequah, Oklahoma 74464. (918)456-6183

Objectives:
1. To further environmental awareness, whereby the student develops a stewardship for his environment.
2. To develop positive values within the student both for the environment and for his interactions with other people.
3. To stress career guidance for all students.

Environmental awareness is developed in the outdoor classroom where we concentrate on three major concepts:
1. Living things are interdependent with one another and with their environment.
2. Organisms are the product of their heredity and environment.
3. Organisms and their environments are in constant change.

With the development of these concepts the student better understands his role in the total system and therefore becomes more responsible for his own actions.

Our outdoor classroom has eight mini-sessions within the total program. These include outdoor safety, creative communications, soil conservation, water ecosystems, grassland ecosystems, wildlife conservation, forestry, and geology and natural resources. Each mini-session is instructed by volunteer, professional resource persons. While working with the students on activities related to each topic, the instructors also tell about their work and other related careers and the training necessary for each vocation. This career guidance is especially beneficial with the upper level students.

The program is intended to be very flexible with development of each area of study left to the discretion of the resource persons.

Task cards were printed to be used as desired. The information on these cards was obtained from the U.S. Forest Service's pamphlet series, Investigating Your Environment.

Much of the information in the syllabus was gleaned from the various brochures obtained from the district level of the U.S. Soil Conservation Service.

History:
The Tahlequah program developed from regular class sessions of 55 minutes, to weekend activities, to the full week in the field with follow-up within the individual classes. We discovered that one class period is insufficient for many activities and many students could not become involved on weekends due to transportation problems and other activities. The full week allowed adequate time and also maximum benefit from our resource persons.

When the need for a total program was recognized, the Tahlequah Public Schools and the Soil Conservation Service co-sponsored a two day workshop to train teachers for working in an outdoor classroom.

In addition to our outdoor classroom we have extended the development of environmental concepts to our total science program by incorporating a plant studies room and an animal studies room into our new junior high science building. The students designed and purchased a 5' x 2' x 2' glass terrarium which they maintain; they purchased ERTS satellite images of our area for monitoring the environment; and built and operate a Tullgren Funnels system for biotic soil analyses. Many of our ninth-graders' science projects relate to environmental studies of concern to our local area, such as the life cycle of the tick, monitoring water pollution in selected water sources, and monitoring air pollution in selected water sources, and monitoring air pollution by analysis of rain collected at different sites within the county.

Present activities in environmental education:
In addition to incorporating environmental education into the existing curriculum at our school, I have promoted the outdoor classroom concept through meetings with the Soil Conservation Service and the Soil Conservation Society of America. I also made a presentation on Northeastern State College's Talkback Television on implementation of the outdoor classroom in a public school situation.

I serve as a science resource person for the Oklahoma State Department of Education and conduct science in-service training workshops which promote environmental education.

Problems:
We have not encountered any particular problems in our program. Our adminstrators and classroom teachers were involved in the planning process and our outdoor site is owned by the public school system. It is approximately 30 acres of varied habitats, including two ponds, an intermittent stream, grasslands, and some woodlands. It is also within walking distance from the junior high campus; therefore, we have no transportation expenses and the students can walk back to campus for lunch.

Future plans:
Future plans include a total program for all grade levels. Each of our three elementary schools have adequate land adjacent to the school site which is already in ownership of the school system.

A syllabus for the first year junior high program of a three year program has been proposed. Second year plans are to map the field study area, and involve the students in site improvements. Third year plans are to do some comprehensive sucession studies based on information gained in the first two years and continued through the third year.

-Doris K. Grigsby
Coordinator

PROGRAM TITLE: ENVIRONMENTAL EDUCATION PLAN, STATE OF OREGON

DIRECTOR: Mary Lewis, Specialist, Environmental Education, State Department of Education, 942 Lancaster Drive NE, Salem, Oregon 97310. (503)378-4326

Living Education (A teachers guide to overnight sites in Oregon) to be published late fall, 1974.

Purpose: To encourage and inspire teachers to recognize opportunities for education outside the walls of the classroom. To help teachers recognize that environmental education is interdisciplinary in concept and that living is learning. To provide a directory of non-commercial overnight sites throughout the state.

Method: Review of materials produced by other states, school districts and agencies. Contact agencies, churches and private camp owners, District Soils and Conservation Agents, County Extension Agents, U.S. Forest Districts, B.L.M. and State Parks Management, County Courts and Local Chamber of Commerce offices to secure directory information.

Questionnaires were developed and sent to all known site owners. Those not responding were contacted by telephone or a personal visitation was made. Information was compiled by geographical areas. The total publication was developed in three sections. One on awareness, one related to resources, and the third, the Directory. This was done to enable the sale of the directory to the public and private individuals and agencies interested in the listing of resident camp sites located in Oregon.

Youth agencies, state agencies, churches, private individuals and federal agencies have expressed a desire to have this information and have cooperated in assisting with the research involved.

Problems: The follow-up on non-returned questionnaires; the changes in contact people and in ownership made it necessary to update almost continuously the directory information, and to recontact all listings prior to final publication. It is hoped this portion of the project can be completed and the final draft ready to go by October of 1974.

A plan for annual review and revision is being considered. A site and facilities study for a proposed Environmental Education Center has been prepared and submitted to the Advisory Committee for Environmental Education. A rough draft of the State Plan for Environmental Education for 1975-77 has been prepared. This plan will be expanded for publication in the current biennium.

-M. Lewis

PROGRAM TITLE: HABITS AND HABITATS - A MODEL MULTI-DISCIPLINARY MULTI-PERIOD COMMUNITY BASED ENVIRONMENTAL EDUCATIONAL PROGRAM OF STUDIES

AUTHOR: Betty Glasgow-Gillin, 6356 Columbia Avenue, Philadelphia, Pennsylvania 19131.

PUBLISHED BY: Saint Joseph's College Press, 54th and City Avenue, Philadelphia, Pennsylvania 19151.

Habits and Habitats describes how to construct and implement a multi-disciplinary multi-period community-based environmental educational program at any level of the educational system.

The program is designed to utilize the community as a social and scientific laboratory and the classroom as a tool for reinforcement, reflection, and planning on the part of students and teachers.

It carries with it a supplement which provides a suggested curriculum applicable to 10th through 12th grades. The Supplement to Habits and Habitats offers a course outline, description, and objectives, with corresponding bibliographies which include reference materials and activities relating to the community and classroom. The disciplines employed are political, economical, bio-physical, and socio-cultural. The program transcends and employs the sciences and the humanities, placing emphasis on the student's development of communication skills to bring improvement of the quality of his environment on a community level, then expanded to a state and national level.

-B. Glasgow-Gillin

ERIC DOCUMENTS:
Habits and Habitats. SE 018 654

PROGRAM TITLE: SAN CRISTOBEL: ENVIRONMENTAL STUDIES

DIRECTOR: Commonwealth of Puerto Rico, Department of Education, Hato Rey, Puerto Rico.

I regret to inform you that our project on environmental education was discontinued around two years ago due to lack of funds after three years of existence under Title III. However, the ideas which the project implemented are still in use in some school districts in Puerto Rico and much of it has been included in our curriculum.

-Ines J. Guzman de Perez

PROGRAM TITLE: OUTDOOR LABORATORY TO DEVELOP COMMUNAL, ECOLOGICAL AND SCIENTIFIC EXPERIENCES

DIRECTOR: Mr. David E. Malave, Commonwealth of Puerto Rico, Departmento of Public Education, Office of the Superintendent of Schools - San German, Puerto Rico 00753. 892-1790

Objectives:

1. By the end of the project's third year of operation and by means of the establishment of an outdoor laboratory for environmental studies and direct observation of the interrelationships between plants, animals, air and water, enrichment of the science curriculum or teaching units and development of special activities for students such as field trips and others the participating students as a group will be able to:
    a. improve their academic achievement in science by 55%.
    b. improve their academic achievement in social studies by 20%.
2. After the science and social studies teachers have received orientation in relation to the use of an Outdoor Laboratory for the development of scientific, ecological and communal experiences, 100% of the teachers involved in the orientation, will have used the outdoors laboratory as a strategy to enrich all learning experiences of the participating students.
3. By the end of the project's third year of operations, the agencies from the community will have offered technical assistance to the project, at least, twice a year.

The direct target population:

166 students of 7th, 8th, and 9th grade
2 teachers
1 Project Coordinator
1 Director
255 families in the community

History:

The situation in our school was such that the need for an outdoor laboratory was very demanding.

Minillas Second Unit is located in the rural zone in the San German School District. School enrollment is 521 students; of these 358 are in the elementary level and 166 at the intermediate level. There are 18 teachers, one project coordinator, one director, one vocational counselor, one social worker ~~and~~ one librarian;

The school has a small farm. The area surrounding the school is divided into lots. There are 255 families living in this community. The majority are small farmers. These people show great interest and concern about everything pertaining to school, demonstrated by their cooperation, both in attendance as well as in active participation in school activities.

Through interviews and visits to teachers, especially science and social studies teachers, arose the situation of the scarcity and poor condition of the equipment. The students manifested the necessity of studying the environment more directly. They expressed the need of having more scientific and ecological activities within the school. Out of this situation arose the necessity of beginning an outdoor laboratory to develop communal, ecological and scientific experiences.

The project was begun in 1972 with a direct target population of 171 students from 5th, 6th and 7th grade, 6 teachers, 1 Director and 255 families in the community. A study of the curriculum of the science and social studies of these grades was made to interrelate the curriculum with the outdoor laboratory. Many activities were made with the participating students and the community.

Our present activities in environmental education are:
1. Ornamentation of the laboratory and the school grounds.
2. Maintenance of the pond.
3. Propagation of the different types of fishes.
4. Planting of citric trees.
5. Development of a zoo made up of domestic animals.
6. Reproduction of different species of plants.
7. A garden club.
8. An orientation to parents of the different types of plants that can be grown in the community.
9. A study of the different types of grasses of Puerto Rico and how to propagate them.
10. Development of a vegetable garden.
11. A study of how the pond keeps clean.
12. Field trips to different areas of Puerto Rico so that the students can relate the area they live with other areas.

All of the projects mentioned are being made by the students, parents and different government agencies. Other agencies use our slides, pictures, albums and printed material. Soil Conservation representatives bring people to visit our laboratory; use our printed materials to propagate our ideas to other schools in our district and in all Puerto Rico. The local Experimental Station of the Government visits our laboratory to establish our laboratories in other schools. Natural Resources agency helps us in giving technical help in all aspects of the laboratory. They also help the students with their individual projects within the laboratory.

Problems Encountered:
The first problem encountered was one of finance. The money assigned was not sufficient for all the projects that the students had in mind.

Other problems encountered were some with regard to planning of activities that were not included since the beginning.

Financially, we have received assistance from the local board and with the help of the community and the teachers, the students have been able to carry out their projects. Many government agencies have given us plants and animals for our experiments. Most of the sub-projects were carried out with a lot of success, thanks to the participation and enthusiasm of the students, teachers and parents.

Future Plans:
Since the project ends formally this year, plans are being made to keep the Laboratory functioning. The local district plans on naming a maintenance man to see after the physical aspect of the project. A teacher will be named who will teach the regular cirriculum but have some hours to look after the laboratory. Plants from the green house will be sold to collect money to feed the animals from the zoo and the pond.

-D. E. Malave

PROGRAM TITLE: OCEANOGRAPHIC SCIENCES CONCEPTUAL SCHEMES PROJECT, ESEA, TITLE III

DIRECTOR: Dr. Gary L. Awkerman, Director of Natural Sciences, Charleston County School District, 3 Chisolm Street, Charleston, South Carolina 29401.

ERIC DOCUMENTS:
1. Animals of the Sea: Coelenterates, Protozoa, and Sponges. ED 086 552
2. Aspects of Marine Ecology. ED 086 553
3. Estuaries. ED 086 554
4. Marine Biological Field Techniques. ED 086 555
5. Sea Changes. Topics in Marine Earth Science. ED 086 556
6. Zones of Life in the Sea. ED 086 557

PROGRAM TITLE: ENVIRONMENTAL EDUCATION IN SOUTH CAROLINA

CONTACT: Alice Linder, State Department of Education, Room 110, Rutledge Office Building, Columbia, South Carolina 29201. (803)758-2652

Being aware of the need for conservation education in the schools, an Advisory Council was formed for Conservation in South Carolina in 1960. The objectives of this Council included the establishment of an instrument capable of providing guidance for teachers in the development of a desirable program in environmental education. Another objective was the development of an action program which will unite the public schools, natural resource agencies, and other interested groups in a combined effort to establish better conservation practices in our state.

In 1965, the Conservation Curriculum Improvement Project was initiated, and a set of eight guides were written by a group of thirty-four teachers.

In 1970, a full-time environmental education consultant was hired by the State Department of Education whose initial task was to conduct in-service programs concerning the use of the "People and Their Environment" guides. These guides are now being vended by the J. C. Ferguson Publishing Company. Initially nearly 30,000 copies of the guides were distributed in the South Carolina schools, and workshops were conducted to assist in the implementation of the guides. The guides are intended to provide alternative lessons and supplement the text material.. They are designed so that most of the lessons do not need to be followed in sequence.

The Consultant left the state in the early part of 1972, and the Advisory Council did not meet during that time. As a result, no progress has been made in environmental education. In April of this year, a new consultant joined the staff, and the Council has been reactivated. Efforts are also underway to establish working committees and to get a program started. Plans for this year include a survey of environmental education programs in the school districts, definition of environmental literacy by construction of a listing of behavioral objectives and the development of a document to assist school districts in planning and permeating the curriculum with environmentally oriented activities. This document as proposed will include program guidelines, objectives, site analysis, resources, and a bibliography of learning materials.

Workshops with contact people from the districts are being planned for the spring of 1975.

-A. Linder

ERIC DOCUMENT:
A Survey Study of the Comparative Status of Understanding and Reasoning in Conservation Concepts by Ninth Grade Students in the Public Schools of South Carolina. ED 076 320

PROGRAM TITLE: NATURE NOOK - SEMINOLE'S OUTDOOR CLASSROOM

DIRECTOR: W. S. Sandel, Principal, Seminole Road Elementary School, 2700 Seminole Road, Columbia, South Carolina 29210. (803)772-0513

Objectives:
1. To teach good conservation practices.
2. To develop appreciation for nature and wildlife.
3. To provide motivation for academic areas of the curriculum.

History of program:
1. Summer of 1972 - A Seminole teacher attended a Conservation Workshop at the University of South Carolina.
2. Fall of 1972 - Teacher discussed with her principal the possibilities of establishing an outdoor classroom at Seminole School; Teacher and principal invited representatives of the local Field Office of the Soil and Water Conservation District and representatives of the local U.S. Forestry Commission to inform faculty of possibilities for the Seminole School site.
3. Winter of 1972-73 - A committee of Seminole teachers was appointed with the purpose of leading in the establishment of an outdoor laboratory on the school campus.
4. Spring of 1973 to present - Outdoor classroom activities developed and used by Seminole faculty and student body.

Present activities:
1. Nature trail
2. Songbird beautification plot
3. Soil profile pit
4. Grassed slope
5. Swale drainage area
6. Wildlife habitat
7. Decaying stump and logs
8. Bird feeding stations.

Plans for the future:
1. To place a sundial in outdoor classroom.
2. To add other activities as appropriate.

-W. S. Sandel

PROGRAM TITLE: K-12 ENVIRONMENTAL EDUCATION PROJECT

DIRECTOR: Ronald Wackel, Rapid City Public Schools, 809 South Street, Rapid City, South Dakota 57701. (605)342-4020 Ext. 25

The Rapid City Public Schools is again conducting an environmental outdoor classroom for all sixth grade students. A change has been made in the schedule this year whereby the students will remain at the camp just a day and a half instead of three days as in previous years. Attendance is on a voluntary basis.

The program stresses ecology and basic concepts of conservation. The outdoor classroom serves as a natural laboratory where students learn through direct contact with the things they are studying.

The sixth grade Outdoor Classroom will be held at Camp Bob Marshall, about six miles east of Custer. The facilities are excellent and the site ideally located next to Custer State Park. Teachers and/or parent counselors accompany students and stay with the children. Other qualified instructors assist with the program. All students are under constant supervision.

This program was supported under Title III, ESEA, but that funding has expired. The Rapid City Public Schools have assumed responsibility.

-Milbert Rau
Director of Instruction

PROGRAM TITLE: ENVIRONMENTAL EDUCATION, TENNESSEE STATE DEPARTMENT OF EDUCATION

DIRECTOR: R. Jerry Rice, Science Specialist, State Department of Education, Division of Instruction, Cordell Hull Building, Room C3 - 303, Nashville, Tennessee 37219. (615)741-2421

ERIC DOCUMENTS:
A Report on the State Conference on Environmental Education. ED 071 873

PROGRAM TITLE: NEBO SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

DIRECTOR: Sterling R. Swenson, 570 South Main, Springville, Utah. (801)489-6101

The main objective of our Outdoor Education Program is to educate boys and girls in the field of sciences dealing with the great out-of-doors. We feel that education has far too many years involved in talking about nature, but not enough in touching, feeling, seeing, smelling and hearing of the things nature has to offer. We have a motto at our campsite that goes like this: "Instead of you showing how much you know about nature, why don't you let nature show you how much she knows."

We find that as educators we program students into a line of "non-observers". We need to teach students to look at and wonder about nature. Through this observation, real learning can take place.

Our program started in 1969. A Committee was organized to develop and to create an Outdoor Education Program for the school district. This committee is a real and very functional group. It has the responsibility to administer the Outdoor Education Program for the district. The committee is made up of school board members, district staff people, principals, teachers and many members from government agencies dealing with environment.

This committee sets up priorities concerning construction of camp sites, programs, enrollment, and work in all phases of developing a workable program.

As of this date, the committee is functioning as outlined and also is a disseminating board to get materials into the hands of the teachers in the district.

Our present programs consist mainly of summer school programs. This program involves approximately 360 students. The program is divided into two groups. The 3rd and 4th grade group and the 5th grade group. The program for the 3rd and 4th grades consist of two weeks of educational field trips. These trips are taken to places of interest with the emphasis on environmental learning, such places as the sand dunes, mountain lakes, water-shed areas, fish plants, natural history museums, and the famous Timpanogos Cave. These field trips are planned to use resource people as much as possible.

At the end of the two week period, the students then are taken up one of the local canyons for an overnight campout. This is the finishing touch of the two weeks.

The other group, the fifth grades, are taken up to the newly established camp site that the district has purchased. The fifth grades are divided, with the girls going for one week and the boys going for one week. The district owns all the camping equipment needed. The students need only bring their personal gear. Next year the students will be able to sleep in two newly constructed A-frame buildings.

While at camp the students learn bird study, animal study, stream study, plant study, measurement, about weather and other outdoor education studies. Most of all, the students learn how to be a part of each other and to be a part of nature.

The biggest problem the committee faces at this time is: where can we get the money to do the things we want to do? We are not alone with this problem. As you know, most districts have the same problem. We have used all available means to secure monies from the state and federal programs, to assist in the development of our program. With the money we have available we can run a limited program each summer, but we hope to be able to increase all phases of the program.

The future for the Nebo School District Outdoor Education Program is bright. Our superintendent is pulling for the program. With his support, the program can go ahead and make progress.

As of this date the summer program has been run for four years with the use of camping equipment the district owns. In the spring of 1973 the district purchased 40 acres of prime forest land just 20 miles from the heart of the district. This land is in the boreal forest area of the Wasatch Mountains. The land is beautiful and is an ideal spot for an Outdoor Education Program site.

This summer the district built two A-frame buildings to be used as dormitories in the future. These buildings will be completed in the spring of 1975. They are double-decked with approximately 1000 square feet of living space in each.

Plans have been made to develop water and sewage facilities and to build a protective fence around the area. In the future we visualize several more A-frame buildings, and a large lodge for holding programs with a cafeteria for food services. We hope to have some small type shelters for those who wish to camp outdoors.

The overall goal would be to have Shadow Mountain, which is the name of our campsite, with a year round program to cover all grades from kindergarten to senior high school and to give each student in our district an opportunity to let nature teach him about the world and himself.

Most of our materials and curriculum is still in the development stages. We hope in the future to develop nature trails, both guided and non-guided, and to develop learning centers at Shadow Mountain. When this happens we will be glad to share our ideas and materials.

-Thomas Hudson
Teacher Leader, Outdoor Education

PROGRAM TITLE: PILOT PROGRAM IN ENVIRONMENTAL EDUCATION, SEDRO-WOOLEY SCHOOL DISTRICT

DIRECTOR: John C. Miles, Huxley College of Environmental Studies, Bellingham, Washington 98225.

ERIC DOCUMENT:
The Development and Field Testing of a Pilot Program in Environmental Education in the Sedro-Wooley School District. ED 066 363

PROGRAM TITLE: ENCOUNTER WITH THE NORTHWEST ENVIRONMENT..
NATURAL AND URBAN

DIRECTOR: Tony Angell, State Department of Public Instruction, Old Capitol Building, Olympia, Washington 98504. (206)753-2574

Under funding from the Western Regional Environmental Education project (ESEA Title V, Section 505) a guide to sites for environmental encounter experiences - Encounter with the Northwest Environment: Natural and Urban - was prepared in 1972.

This catalog of information on these sites was developed on the basis of the following needs statement and objectives:
Statement of Need: There is a need to identify sites for environmental encounter experiences. This need exists for students and teachers involved in grades K-16 who wish to use either field trip or resident camp facilities in the learning experience relative to environmental education. A need exists for a catalog of information on these sites showing location, describing the site(e.g. 400 pupil marine resident camp; a field trip study area for flood plains; a field trip study area for pond succession; an inner city field trip area for study of an industrial part (location, etc.) presenting a matrix for determining mileage from school to the selected site, and a statement of rationale and procedure for the study of these real life environmental encounter areas.

Objectives:
1. A format for describing environmental study areas will be developed such that it may be easily applied to such study areas in other states.
2. A description of existing sites in use for environmental education will be produced. The extent of existing environmental education in schools will be described.
3. A resource guide catalog for teachers who wish to take students directly into diversified environmental encounter areas will be developed. This guide will have direct application for identifying and cataloging environmental encounter areas in other states. It is necessary to identify these high use or human impact areas in order to contrast them with the pristine environment drainage area.
4. Existing learning rationales for environmental education will be applied to realistic situations. For example, the Strand technique developed by William Stapp and promoted by the National Parks Service, is a convenient way of describing similarities and differences that exist in particular environmental situations. Here again, a method of comparing a series of environmental study areas will be presented and made available for use in other regions, as well as other states.
5. A model will be developed to eventual cataloging of all encounter areas within a state. Such a state model may then be adopted by states wishing to inventory environmental study areas (e.g. site descriptions of flood plain in Skagit Valley will have information easily applicable to the flood plains of the

Sacramento River in California or the Willamette River in Oregon, Etc.).

Among cooperating agencies were the Office of the Superintendent of Public Instruction, University of Washington College or Architecture, Seattle Audubon Society, State Parks and Recreation, Department of Natural Resources, Seattle Public Schools, Northwest Environmental Education Center, and the Environmental Education Council of King County.

-Dave Kennedy

ERIC DOCUMENT:
Encounter with the Northwest Environment: Natural and Urban.
SE 018 317

PROGRAM TITLE: CREATE TOMORROW...TODAY

DIRECTOR: Dave Kennedy, Supervisor, Environmental Education Programs, Old Capitol Building, Olympia, Washington 98504. (206)753-2574

CREATE TOMORROW...TODAY, is the title of an energy awareness Program that has been developed by the Office of the Washington Superintendent of Public Instruction. The program is intended to help individuals feel the need for a solution to the energy problems they will face in the years to come.

There is no emphasis on crisis. There is an emphasis on awareness. We know we can't appropriately provide our target audience with enough facts in one week to significantly change their lifestyles. However, we know that we can help them become more aware of the dimensions of the energy problems facing them. We can set the stage for a long-term educational effort and provide the initial excitement and enthusiasm necessary to affect a significant energy conservation ethic in the school population.

Program Goals: The target audience of the program includes the students and teachers of grades K-12 in the public schools of Washington, and while the general public is not the main audience, we expect to affect a sizeable portion of that population. The goals of the program are two fold:
1. We hope to initiate a level of awareness in the population consistent with man's growing understanding of energy.
2. We want a personal commitment from individuals to voluntarily reduce energy consumption.

Implementation: The program strategy was based on the designation by Governor Evans of the week of March 3-9, 1974 as Energy Awareness Week. We assisted teachers to integrate short range, high impact activities into their curriculum for that week.

1. 15,000 activity guides have been developed to provide teachers K-12 throughout the state with appropriate teaching materials and ideas.
2. This provided one guide for every two classroom educators. In the spirit of conservation, we asked that the teachers share their resources. We asked ISD's to coordinate distribution and support services.
3. A television program was developed. The target audience was the total public in the State of Washington with particular reference to students, teachers and administrators. The following items were included in the thirty-minute television program:
   a. The energy awareness film, "A Thousand Suns."
   b. A brief synopsis of what is currently being done in some Washington classrooms on the topic of energy.
   c. An introduction to the activity guides and suggestions on their use.
   d. Plans for follow-up to the one-week program.
   e. Commentary by Governor Dan Evans and Dr. Frank Brouillet, Superintendent of Public Instruction.
4. The 9-minute awareness film was shown several times during the week so classes could take advantage of its potential.
5. Plans were made to show the whole video component on Sunday evening over P.B.S. so that the general public could participate.
6. Press releases were an essential part of the program. They informed the general public and reinforced the awareness concept with the school populations.
7. An evaluation component has been developed to determine the kinds of change in school children resulting from this awareness effort.

It looks as though, while we planned for a big bang, we may have started a long, rumbling chain reaction that has the potential for much more extensive impact on teachers and kids. One critic noted that "the manner in which this effort is reinforced in the teacher population will determine how successful the week will be." I agree with that analysis, and look forward to finding out what happened (or will happen) in the classrooms.

-D. Kennedy

ERIC DOCUMENT:
Create Tomorrow Today. An Energy Awareness Program. ED 089 993

PROGRAM TITLE: POPULATION EDUCATION

DIRECTORS: David Kennedy, John Landahl and Tony Angell, State Department of Public Instruction, Old Capitol Building, Olympia, Washington 98504. (206)753-2574

Objectives:
The population education pilot curriculum development project conducted from July 1973 to May 1974 was designed to fulfill in part the requirements of Senate Concurrent Resolution No. 12, which provides that "the State Superintendent of Public Instruction...examine methods and assist in efforts to provide course materials, teaching support, and/or suggestions for a series of related courses or a single course on ecology, including the relationship of human population to the life support system called Earth, with the goal that every student in the public school system of the state of Washington shall have the opportunity to develop an understanding of basic ecological principles, within the setting of the public schools."

One objective of the project was to identify points in existing curricula at which population concepts usefully be integrated, and to field-test available materials, activities, techniques, and approaches for population education. A second objective included the identification of new materials needed for population education and the production of a packet of task cards dealing with population concepts (e.g. growth rate, death rate, birth rate, arithmetic growth vs. geometric growth). At the end of the project, a one-day workshop was conducted to familiarize some interested teachers with the project.

Scope:
The first semester of the project began with a three-day workshop for four teachers from the Seattle, Mercer Island, Shoreline, and North Shore school districts. Available and prototype materials, activities, and techniques for population education, including those contained in the SPI guide "Teaching Population Concepts," were tested in three junior high and one upper elementary classrooms, utilizing an evaluation instrument to obtain an objective measure of their effectiveness in increasing student knowledge of population concepts.

Structure:
The project was conducted by the Division of Curriculum and Instruction under the supervision of J. Anthony Angell and David Kennedy, Supervisors of Environmental Education. The project coordinator was John Landahl of the Department of Zoology, University of Washington. The budget for the project was approximately $10,000, of which $4200 was allocated for administrative expenses and consultants' fees, $1700 for consultants' fees for participating teachers, $750 for resource and classroom materials, $1250 for expenses, and $2100 for the production of materials.

History of the Project:
A three-day workshop for the four teachers who participated in the first semester of the project was held August 27-30, 1973, at Marrowstone Resort, for the purpose of reviewing population concepts in the framework set forward in the SPI guide "Environmental Education Guidelines," reviewing available materials for

population education, and identifying points in present curricula at which population concepts could be integrated. At the beginning of fall semester, 1973, an evaluation of participating teacher's classrooms was conducted to obtain an objective measure of students' knowledge of population concepts, using an instrument devised during the workshop. The teachers then began presentation of population concepts and testing of materials, activities, and approaches, meeting twice during the semester to discuss their results. At the end of the semester, a post-test was administered to participating classrooms to assess changes in students' knowledge of population concepts.

In January, 1974, the project, originally intended to last one academic term, was extended for a second term. Pre-tests were once more administered to students in participating classrooms, and population concepts were presented using activities modified on the basis of experience the previous term. The teachers met twice during the second term to exchange ideas and activities, and administered a post-test to their students at the end of the second term. Their revised activities were compiled and printed as a set of task cards and a simulation game. In addition, a one-day workshop was conducted on May 4 for three additional teachers and one administrator interested in population education to familiarize them with the results of the project. The participants met for a final time on May 21 to discuss recommendations to SPI for further programs in population education.

Communication:
Four newsletters were prepared during the project and mailed to approximately fifty administrators and professionals involved in population education both within the state and throughout the nation in order to maintain feedback and keep interested persons informed of the progress and activities of the project.

Learning objectives:
During the August 1973 workshop, the project participants formulated the following list of learning objectives for population education to provide a framework for the development of activities.

1. The student should be able to identify a population.
2. The student should be able to define and distinguish between arithmetic growth and geometric growth.
3. The student should be able to define birth rate, death rate, and population growth rate.
4. The student should be able to differentiate between immigration and emigration.
5. The student should be able to differentiate between various population growth rates.
6. The student should be able to define doubling time.
7. The student should be able to explain the relationship between population growth rate and doubling time.
8. The student should be able to define population rejection.
9. The student should be able to make a population projection based on given data.
10. The student should be able to define age structure.

11. The student should be able to construct an example showing age structure.
12. The student should be able to define limiting factor.
13. The student should be able to identify various limiting factors.
14. The student should be able to give an example of natural regulation of populations.
15. The student should be able to define carrying capacity.
16. The student should be able to list several factors influencing the carrying capacity of an ecosystem.
17. The student should be able to define and give examples of pronatalist customs.
18. The student should be able to define ecosystem, community, habitat, and niche.
19. The student should be able to identify factors affecting birth rates and death rates.
20. The student should be able to identify relationships between population growth and factors it affects.
21. The student should be able to identify values in the community regarding population.

Materials:
The materials produced by the project consist of 24 task cards for use by teachers at upper elementary and secondary levels, and a twenty-page booklet entitled "ECO--An Island Simulation Game" chiefly intended for use at the upper elementary level. Together, the task cards and booklet make up the "Population Education Packet."

Evaluation:
Pre-tests were administered to 76 5th and 6th grade students at Dunlap Elementary School and to a total of 168 junior high school students at Morgan, Kenmore, and South Mercer junior high schools. Post-tests were also administered at most of these schools but not all data are available.

Recommendations:
The project's successes can be furthered through action in three categories:
1. Of greatest importance and urgency is the development of programs for teacher training and awareness in the area of population concepts, activities, and materials.
2. There is a need for an increased accessibility of available materials by cataloging and distributing to interested schools and teachers what has been thus far developed.
3. Further development of population curriculum can be achieved by broadening the materials so as to be applicable in additional subject areas.

-D. Kennedy

ERIC DOCUMENTS:
1. Teaching Population Concepts. SE 018 315
2. ECO: An Island Simulation Game. SE 018 316

PROGRAM TITLE: NORTH KITSAP MARINE ENVIRONMENTAL CENTER

DIRECTOR: C. David Borden, Route 1, Box 631, Poulsbo, Washington 98370. (206)779-5549

A. Objectives: The North Kitsap Marine Environmental Center has objectives covering a broad area. They are to establish, operate and maintain a model marine science laboratory on Liberty Bay in Puget Sound. The objectives cover three basic areas. 1) Disseminating agency; 2) Marine Science Teaching Station; 3) Curriculum development.

1. As a disseminating agency, the lab has the following objectives:
    - a. To provide and distribute commercial and locally prepared audio-visual and educational materials, equipment and specimens.
    - b. To provide units of study and activities for elementary students, to be taught in conjunction with field trips and classroom activities.
    - c. To provide units of study and activities for enrichment of secondary courses in earth science, life science, chemistry and physics.
    - d. To provide units of study and instructional materials for handicapped students.
    - e. To provide a series of individualized activities or research projects for students at all levels.
    - f. To provide in-service training for teachers through classes, workshops, conferences, institutes and newsletters.
    - g. To prepare and disseminate a marine science curriculum resource guide and other assorted materials.

2. As a marine science teaching station, the lab has the following objectives:
    - a. To serve as an extension of the classroom for elementary and secondary students during the regular school day.
    - b. To serve as a field trip site for handicapped students.
    - c. To serve as a classroom and laboratory for junior high and senior high marine science elective courses during the regular school day.
    - d. To provide interested students and teachers with an opportunity to participate in a wide range of after school and weekend activities.
    - e. To serve as a base for summer enrichment programs which include course work, field trips, and individual or small group research.
    - f. To serve as a base for teacher in-service during the summer and regular school year.
    - g. To serve as a base for additional research.
    - h. To serve as a classroom and lab for adult education.

3. Curriculum objectives:
    - a. To supplement and enrich currently existing kindergarten through grade 12 science programs by teaching appropriate aspects in a marine setting.

b. To create an awareness in all students of the present and future need for wise use of the ocean and of the future of it as man's next frontier.
c. To provide opportunities for students to explore the content area of the broad field of marine science; to use and develop some of the types of equipment marine scientists use; and to participate in some of the types of activities in which marine scientists participate.
d. To create an awareness of the vocational potentials in the field of marine science.
e. To develop and encourage an approach to science teaching based on the philosophy that science instruction should include such methods as: activity centered, individualized, interdisciplinary, and should use a multi-media approach.

B. Means of fulfilling objectives:

1. Dissemination and diffusion of exportable materials and services. This phase will deal with refinement, reproduction, and dissemination of exportable materials and services. A listing of curriculum materials and other available services and technical assistance.
2. Utilization of Center staff as resources to districts wishing to implement new programs or improve existing programs. The Center staff will be available in the field for services ranging from in-service training to technical assistance.
3. By developing curriculum, conducting programs and classes at the elementary, Junior High and Senior High level at the facility and within the local schools.
4. Demonstration Center--utilization of the Center as a demonstration site. Individuals and groups will be encouraged to visit the Center, observe its operation, and discuss programs with the staff. On-site in-service training will also be conducted at the Center upon request.
5. The facility is being utilized by community groups; summer and gifted programs; and evening and weekend adult education.
6. Presently in the production stages are a booklet; catalogue of programs, curriculum and services; 16 mm film and/or a slide presentation and narration.
7. Maximum utilization of other media such as newspapers, periodicals, bulletins, television, etc. are being sought. Project staff will also be available for workshops, presentation, etc.

C. History: The North Kitsap Marine Science Project was developed and implemented during the period from July 1968 to June 1972. ESEA Title III funds were sought to determine the feasibility study. Additional ESEA funds were sought in the initial remodeling of the water front facility and to assist in the development of future programs. With the aid and support from interested local, government, business, and other resources the facility was completed in November 1970.

Since that time programs and services have flourished. Surrounding district participation has increased despite several levy failures.

The North Kitsap Marine Environmental Center (name changed in 1971) is funded by local districts. The Center's present emphasis has been toward improving the quality of existing programs and expanding our services and outreach.

D. Present activities: As of July 1973 the Intermediate School District #114, an administrative cooperative for the counties of Kitsap (except Bainbridge Island), North Mason School District 403, Jefferson and Clallam counties has become involved in the management of the facility. Several of the purposes of the cooperative are to expand the services, improve management, explore future utilization and establish a financially sound base for continued operation.

North Kitsap School District, our home district, Central Kitsap, Bainbridge Island, Quilcene, Port Townsend, and Chimacum School Districts contract for annual blocks of lab time and services from the Center. Other outlying districts of the Puget Sound Region contract for limited amounts of programs and services on an occasional basis. Our activities include:

1. Elementary Programs:
    a. The first and second grade Marine Science Program is designed to introduce the elementary student to the marine environment. The students learn how animals move, gather food, and protect themselves, plus a basic understanding of ecology and environmental awareness. The program is designed to run approximately three weeks with a 1½ hour lab session at the Marine Environmental Center.
    b. The fourth grade program is designed to provide an opportunity for the students to become aware of the various types of careers and occupations connected directly and indirectly with the local marine environment. The program usually lasts three to four weeks in the classroom with two 2 hour labs at the Marine Environmental Center.
    c. The sixth grade program is designed to provide the student with an awareness of man's relationship to his marine environment. The program developed relationships to life zones, animals and their behavioral characteristics and their interrelationships. Oceanographic instruments are used to collect data and reflect interrelationships between the physical and biological realms. Microscopic life forms are collected and studied in relationship to their ecological role. The program is designed to run approximately four to five weeks in the classroom with three or four two hour labs at the Marine Environmental Center.
2. Junior High, Middle School and Secondary Programs: Classes are conducted daily for the North Kitsap School District at the Junior and Senior High level. Other districts in our region contract for varying amounts of lab time and services for their junior high and senior highs depending on their specific needs and interests.
    a. A one semester Junior High School Marine Science elective course is conducted covering the principles of physical oceanography.

b. A one semester Senior High School Marine Science elective course is conducted with an emphasis on the biological aspects of the marine environment.

c. A two hour Marine Science Research class is offered for students who wish to do advanced work. The course centers on monitoring selected physical parameters and related project work.

3. University, College and Community College Programs:
    - a. Cooperative seminars and specialized programs with universities.
    - b. Internship programs for student teachers in the field of marine science with participating colleges.
    - c. Cooperative use of facilities and equipment for community college classes in marine science.
4. Special Education: The design, development, and implementation of special education programs, i.e.:
    - a. Sea and Shore 6 - an extended program for gifted sixth graders from the greater Puget Sound region.
    - b. Summer enrichment program for students from Dupont, Washington in grades four through six.
    - c. Enrichment program for advanced 4th, 5th and 6th graders from North Kitsap School District - an on going program with lab usage in conjunction with classroom research for participating students.
5. Technical assistance:
    - a. To act as a referral center directing inquiries when necessary to government agencies, organizations or firms which might best meet the need.
    - b. To provide leadership to districts enabling them to better develop their K-12 marine science programs.
    - c. To provide a source for pooling talents, technical know-how, and equipment and exchangeable resources.
    - d. To provide teacher workshops and in-service related to the marine sciences.
6. Community Activities:
    - a. Viking Fest - a community festival held each spring.
    - b. Expo Puget Sound - open house viewing up to date developments and activities involving marine resources in Puget Sound.
    - c. Student assistance in community oriented research projects sponsored by various agencies.
        - 1) Public Health - water quality surveys.
        - 2) Washington State Fisheries - stream management.
        - 3) Seattle Pacific College - Liberty Bay Zostra Marina Plant.
        - 4) Department of Fisheries - Herring and Smelt Spawning Survey.
        - 5) NOAA - Official Tide Gauge Station Monitoring.
    - d. Salmon Farming Seminar (1973) and Seaweed Farming Seminar (1974) - in cooperation with the Cooperative Extension Service; Washington State University; Kitsap County; National Marine Fisheries Service; Washington Sea Grant Program; Washington Department of Natural Resources, and Seattle Pacific College.
    - e. Audubon Society Meetings.

f. Marine Science Society Meetings.
g. Tours for clubs - Blue Birds, Brownies, Cub Scouts, preschool classes, etc.

E. Problems encountered:

1. Insufficient time and staff to develop curriculum and materials prior to initiation of programs.
2. Time and staff to search out, modify and adapt resources to respective grade levels.
3. The need to establish a financially sound base of funding.
4. Adequate communication to the community, government agencies and school districts that the Marine Environmental Center involves much more than '"just teaching a class".

F. Solutions attempted:

1. Curriculum has been developed in resource packet form for grades 2,4, and 6. Curriculum is currently being developed for junior and senior high in resource packet form.
2. A cooperative was formed with the intermediate school district #114 in hopes of broadening our base of operation and assisting in continuing to secure and explore further financial support.
3. We are presently developing an informational strategy which may include a brochure, catalogue of programs and services, plus a film or slide presentation to assist in informing the public of the many functions the Center performs.

G. Future plans:

1. To continue to search for a broader more dependable base of funding.
2. To continue the development of resources and services for the classroom teacher.
3. To develop, coordinate and centralize a more uniform system for the dissemination and diffusion of marine science curriculum and resources through the cooperative network.
4. To complete the senior and junior high school Marine Science Curriculum Resource Packet by June 1975.
5. To broaden our scope of technical assistance.

H. Publications:

1. First and Second Grade Activities Resource Packet.
2. Fourth Grade Career Awareness Activities Unit Resource Packet.
3. Oceanography Unit No. 6 Resource Packet.
4. Articles about the Marine Environmental Center appear in a local publication the "Sea Pen", a quarterly booklet published by the Marine Science Society in cooperation with the Marine Environment Center.
5. "National Geographic School Bulletin", April 24, 1972, No. 28, pages 443-445 has an article concerning the facility.
6. "The Lamp", Spring, 1973, published by EXXON Corporation of New York; pages 46-47 has an article about the Center called Oceans--ABC's.

7. The Marine Environmental Center has given technical assistance and was used as a consultant for White Cap Productions for their 16mm sound-color movie, "The Unique Mollusk". The movie explains the characteristics of the octopus.

-Mrs. Peggy L. Moseid
Secretary to the Director

PROGRAM TITLE: ENERGY AND MAN'S ENVIRONMENT

DIRECTOR: Thomas F. Ris, Education/Research Systems, Inc.,
2121 Fifth Avenue, Seattle, Washington 98121. (206)623-2103

Energy and Man's Environment is a multidisciplinary environmental educational program originally designed for students from kindergarten through the twelfth grade in Oregon, Washington and Idaho. Initially, the EME Program was funded by the Public Power Council in conjunction with the Washington Superintendent of Public Instruction in 1972. This E/RS program has been adopted by the state departments of education in eight western states and receives additional financial support from the Northwest Electric Light and Power Association plus the original sponsors.

The E/RS staff has developed a balanced set of curriculum materials which focus on all facets of energy production, distribution, conservation, present uses and future sources. Over 200 educators and industry resource persons, directed and coordinated by the E/RS staff, produced the first EME Activity Guide in June 1973. One year later, over 7,000 of these Activity Guides have been requested by teachers and school districts in eight western states as well as by educators from throughout the nation.

To motivate the adoption and use of EME materials, E/RS has conducted in-service seminars for 2,970 teachers. Additional educators have been introduced to EME materials at eight different regional universities and colleges in regular credit bearing courses or through spontaneous requests. It is estimated that over 392,000 students are now being reached by EME Program curriculum materials.

E/RS is now involved in the second and final phase of materials development through grants to six EME Curriculum Development Centers in three states. Following pilot testing and analysis, this new material will subsequently be added to present EME Curricula now in the classroom. In-service programs for teachers will continue to be conducted by E/RS as the EME Program expands into more schools and additional states.

-T. F. Ris

PROGRAM TITLE: PROJECT LEARNING TREE

DIRECTOR: Thomas F. Ris, Education/Research Systems, Inc., 2121 Fifth Avenue, Seattle, Washington 98121. (206)623-2103

Project Learning Tree is an education program designed by E/RS which explores all variables which influence forest management. Since the forest itself is a total micro-system, the learner and teacher are introduced to a coordinated curriculum which examines man's dependence and impact on forests.

Prepared for all grade levels from kindergarten through twelve and all subject areas, the PLT development phase is sponsored by the Western Regional Environmental Education Council and funded by the American Forest Institute of Washington, D.C. Managed and coordinated by E/RS, the PLT curriculum model has had the input of representatives from industry, education and environmental groups.

In addition to curriculum materials and student aids, Project Learning Tree incorporates program materials for use in school Environmental Study Areas, a garden, park or vacant lot, which can serve as a laboratory and outdoor classroom for learning.

E/RS began pilot testing of curriculum materials for grades 9-12 in September, 1974 in Los Angeles. Subsequent grade level materials will be tested throughout the autumn. Final program models will be completed in February, 1975. At that time, E/RS will embark on an extensive teacher training program in thirteen western states. Teacher training will prepare educators to incorporate PLT materials in their present curricula on a perpetual basis. Later in 1975, PLT materials will be made available for use by schools nationally.

-T. F. Ris

PROGRAM TITLE: CHETEK CHAIN OF LAKES IMPACT STUDY

DIRECTOR: James Dennis, Chetek High School, Chetek, Wisconsin 54728. (715)924-3136

I. The Chetek-Wisconsin area is blessed with a diverse set of Environments (Ecosystems). My intent is to acquaint as many members of the population as possible with the aesthetic beauty found in our area. For the students my philosophy goes further. It is not just what is out there now but how can we keep it the same and improve it. The problem is to develop intelligent thought processes in the minds of the young students in my charge. The tool I use is the environment. I have found that it is easy to measure learning ability through the use of books and other classroom materials, but it is much harder to measure learning by doing. I have taken the students out of the security of the classroom and made adventurers out of them. They must now meet the environment not on the terms of the classroom but on the terms of the environment itself. If it's cold, they get cold. If it rains, they get wet. The question arises, "Why do this?" and "How does this strengthen the Learning Process?" Chetek has at its disposal a chain of six lakes comprising 127 miles of shoreline. The lakes, although beautiful, do have problems with eutrophication. This is a concern of the whole community. The community question therefore is "How can we make our lakes more suitable for the activities we care about?" The problem is the euthrophication of the lakes. I could have the students read about eutrophication, its cause and its effect, and also read scientific studies of other eutrophic lakes and to ensure that they would do this have them write some sort of an evaluation. I felt by this method that I would have failed to meet both the responsibility I owe to the student and the community concerning my role as an educator. Instead I approached it this way. The students know the question and the problem from association with their elders and personal experience. They now are released into this ecosystem to discover the many interactions that are taking place, both the good and the bad.

Behavior Objectives:

1. During the impact study of the Chetek Chain of Lakes the students will develop an awareness of the importance of water as a media for the existence of life.
2. By the end of the student's involvement, the student will develop an awareness of the physical environment of water.
3. The student will develop an awareness of the chemical interactions necessary for the existence of life.
4. The student will learn some of the taxonomy of both plants and animals found in the Lakes.
5. The student will develop the natural food web present in the Lake during the different seasons of the year. He will be able to do this with accuracy to make sense out of the complex interrelationships of plants and animals in the Chain of Lakes.
6. During the study the student will develop positive attitudes toward learning and studying. He or she will begin to develop attitudes towards life as a result of the discoveries made and conclusions reached.
7. The community will benefit from the program by becoming better informed as to the problems of the Chetek Chain and therefore make better judgement as to the possible solutions that can be adopted. (This refers to the Chapter 301 in the Wisconsin State Code-Lake Rehabilatation and Lake Restoration Act-1973.)
8. Considering the fact that the Lakes are readily available as an educational resource, it will be used as such for the awareness of Aquatic Ecology. It is the intent that the learning processes learned by the students will be carried with them after they leave high school.

From this program a whole new area of student involvement has been born - that of independent study. Every twelve month year an average of six independent projects are developed, researched and presented by the students.

II. After much discussion between school administration, other professionals and myself, the program was put into service during the spring of 1972 with a tentative evaluation date set for the spring of 1975. During that first spring many problems arose. Shortage of equipment was the largest obstacle, along with convincing the community that the program was necessary. Some positive things did come out of the first year. A detailed map of the Chain of Lakes was made showing the current depths and land features. A survey of the community, resort owners and tourists was made which indicated interest and concern about the Lakes. The results of the survey were very helpful in developing the course of study that has followed. During the summer of 1972, three students developed independent projects concerned with the environment and these papers were presented in the fall of 1972 at the regional meeting of the U.S. Army Science Symposium. The second year things began to happen. When it was realized that the school science budget which supports all science programs was not adequate, the community stepped in and the City of Chetek offered $500 for equipment. A local marina made available the use of a boat and gasoline for the purpose of student involvement in the environmental problems of the area. In the spring of 1973 the program student leader accepted for the group the Ecology Council of America award for outstanding service in the field of environmental awareness. The data received from 1973 was again tallied and added to the data of the previous year. By the end of school in 1973 the program was showing success in acquiring data that could be used in restoring the Lakes. While the collecting of data, which is of secondary inportance, was showing outstanding results, the primary objective of the program, the mental growth of the student, was not being adequately evaluated. At this point several elements of the University of Wisconsin-Eau Claire became interested in the program. Both the Chemistry Department and the Biology Department opened their doors and offered assistance with equipment facilities and personnel to develop new methods in aquatic research. The School of Education at the University wanted to develop a measurement tool that would evaluate student learning. Apparently many school systems offer outdoor programs, but no sound evaluation is made. Working through the University I developed a pre-test and post-test measurement tool. The tool was first used in the spring of 1974 and the prime results are that it showed a positive tendency for the student to learn. The tool itself shows learning during a specific time, but does not show mental development in problem solving in other disciplines or retention. This is the type of evaluation I would like to develop. In the spring of 1974 the program was informed that it had been chosen to receive the award of Excellence from the President of the United States for environmental protection.

In the fall of 1974 the first papers were given on the data that had been collected for the past three years. Again these papers were given at the U.S. Army Science Symposium.

In the past three years the program had grown from 23 students and one teacher in 1972 to 85 students and one teacher plus private citizens and public organizations. The concern of a few students in 1972 and the opportunity of a teacher to grab at the chance to remove the students from the classroom and into the environment where they could get first hand experience in the problems that face each of us has been realized. Three-off shoots of this program have resulted: 1) the development of a 90-acre school forest by under-achieving students for the use of the school district and the community, 2) the operation of a municipal sewage test laboratory run by students and supervised by a teacher and the State of Wisconsin, 3) a weekly column in the local newspaper entitled "Eco Notes" written by a student.

I feel that this program has grown from a desire of a few students to learn and a dream of a teacher to allow those students the freedom of learning into the reality of national recognition and support.

III. Our present activities include, the gathering of information to further define the problems of the Chetek Chain of Lakes and identifying the causes, and the organizing of a lake rehabilitation District in accordance with Chapter 301 of the State of Wisconsin Code. We are also engaged in the testing of sewage from the City of Chetek, the restoration of the school forest and six to ten independent research projects on environmental problems of this area by individual students. Copies of student papers are available and have been requested by the Department of Natural Resources of Wisconsin and other organizations. We are available to any organization or school for the exchange of material and ideas.

IV. It was found that because of the success of the program that it will be continued indefinitely and it is hoped that other disciplines may become involved. For the exchange of information I would like to see if other school districts would set up the same type of program and an exchange of information could take place. I feel the only criteria necessary is some place to go outside the classroom and that with complete freedom and trust among student, teacher, and all interested parties, projects such as this can easily be inaugurated.

V. Titles of Papers Available

1. "The Vertical Migration of Daphnia magna as it Appears in the Chetek Chain of Lakes." Susan Kay Hutzler, 1974.
2. "The Study of the Growth-Age Ration of Game Fish Found in the Chetek Chain of Lakes by Means of Scale-Length Comparison." Victor Brodt and Terry Hight, 1973.
3. "The Chemical Components of the Chetek Chain of Lakes-Their Cause and Effect." Shawn Denise Morley, 1974.
4. "The Effects of Climate on the Environment by Use of Climatogram Analysis." Lorri Cizik, 1974.
5. "The Effects of Copper Sulfate on Zooplonkton Found in the Chetek Chain of Lakes." Debbie Huset, 1974.
6. "The Use of a Field Study as a Teaching Tool for the Better Understarding of the Environment." James M. Dennis, Spring 1975.

-J. Dennis

PROGRAM TITLE: ENVIRONMENTAL EDUCATION CURRICULUM GUIDE

DIRECTOR: Mr. Eugene Ertz, Principal, West Salem Elementary School, West Salem, Wisconsin 54669. (608)786-1662

Major objectives: Here at West Salem we gear each individual toward the following nine major objectives:
1. Perceptual awareness--knowledge and emotional responses about the environment resulting from experiences involving the senses.
2. Conceptual understanding of the natural environment--cognitive understanding about the natural environment, organized around conceptual areas such as diversity, organization, interaction, continuity, change and limitation.
3. Conceptual understanding of the man-made environment--cognitive understanding about the man-made environment, organized

around the same conceptual areas as those listed above. Included in this component are man's socio-cultural systems, environmental issues and problems, and an understanding that man's activities are ultimately governed by natural phenomena.
4. Aesthetic discrimination--making aesthetic judgements involving personal values related to order, harmony, fulfillment, beauty and concern for the integrity of all aspects of the environment.
5. Values and value clarification--the recognition that man's actions are the reflection of the values he holds, and how an individual might examine and understand his personal values, particularly as they pertain to environmental issues and problems.
6. Fostering creative abilities and attitudes--responding to environmental issues and problems as an individual who is able to question, to be open minded, and to resolve issues in a creative manner.
7. Humanism--valuing the dignity and integrity of humankind as a result of examining values, attitudes and behaviors of the past and present, emphasizing a respect for the dignity and integrity of the individual, and exhibiting a humanistic attitude in dealing with living organisms and the physical environment.
8. Organizational skills and knowledge--the ability to design and carry out the investigation of a sub-unit of the natural or man-made environment, an environmental issue or an environmental problem, in order to make some decision regarding the sub-unit issue, or problem. In dealing with issues or problems, social, political, aesthetic, economic, cultural, and biophysical aspects are considered.
9. Decision making--using the information gathered by the activities described above to develop alternative solutions to environmental issues and problems considering and weighing against each other the consequences of these alternative solutions, choosing a course of action to pursue, and implementing that course of action.

(As developed by David Engleson)

Each of the objectives support each of the eight concepts that guide the instruction of environmental education here at West Salem. The eight concepts are:
1. Closed System: We live in a closed life-support system (except for solar energy). We have on our spaceship earth all the air, water, and land we will ever have--space and resources are limited.
2. Ecosystem: Living organisms and their nonliving environment are inseparable interrelated and interact upon each other. The exchange of materials between the living and nonliving parts follow circular paths. The relationships are complex and extremely vulnerable to sudden disturbance.

3. Human Ecosystem: Man must have a clear understanding that he is an inseparable part of a system consisting of man, culture, and the biophysical environment. This environment is affected by the life-style of people living in it. If we truly wish to protect and improve our environment, we may need to change our life-style.
4. Land Ethic: Man must develop an ecological conscience toward the environment which reflects a commitment of individual and group responsibility to future generations. Man must see himself not as a conqueror of the land, but as a citizen of it.
5. Population: Our earth is threatened and challenged by our rapidly increasing human population. It is partly too many people for the available space, but it is much more too many people for available resources and for the proper functioning of society.
6. Environmental Contamination: Increasing human population, rising levels of consumption and the resultant demands for greater industrial and agricultural productivity inevitably result in increasing environmental contamination. Man must learn the concept of recycling both to avoid being smothered in his own wastes and to prevent resource depletion.
7. Environmental Quality: Man must develop attitudes of concern for the quality of the environment, in terms of physical and psychological effect which will motivate him to participate in environmental problem solving. Environmental planning might be one such problem.
8. Environmental Decisions: If man is to live harmoniously within his fragile environment, he must rethink consumer and corporation behavioral patterns as well as governmental policies. New behavioral patterns and policies need to reflect an emerging ethic where man is a steward of his environment.

---adapted from William B. Stapp
University of Michigan
School of Natural Resources

We hope to continue to give the most comprehensive environmental education program that we can. We use the following criteria as a checklist to insure we are doing so:
1. Environmental education concepts and generalizations permeate every subject matter area at every grade level, the total curriculum.
2. Students are provided multiple opportunities for direct experiences in all kinds of environments, both "natural" and "man-made".
3. Environmental education begins in the kindergarten (actually at birth) with the development of perceptual awareness, the use of the senses in gathering information about the environment, which leads to conceptualization about the natural and man-made environment. The development of such an awareness continues through grade 12, actually throughout the lifetime of the individual.

4. Students are provided direct experiences in which they have an opportunity to kdentify, study, and act on the solution of real environmental problems in their own community.
5. The nature of man's values and value clarification permeates the entire curriculum. Experiences are provided in which students have an opportunity to explore their own values in both vicarious and real situations as they pertain to real environmental issues and problems in their own community.
6. The school and the community join to form a relationship in which barriers separating the two are eliminated. Community agencies, organizations, industries, and individuals become part of the teacher-student-community team which develops the curriculum and carries out the instructional program of the schools.
7. Student determination of what is to be "studied" has an increasingly high priority beginning with the upper elementary grades.
8. Individuals are treated like human beings. Their individual worth is recognized, a positive self-concept is promoted.
9. Teachers and other school staff, students, and community members are prepared to participate in such a program.

Program History: West Salem Area Schools acquired 160 acres of land from the Federal Property Administration Act of 1949, with the stipulation we show improvements and use. From this date until now the West Salem Garden Clubs, Vocational Agriculture Department, staff members, students, local farmers, and interested citizens have laid out three nature trails, erected a 30' X 50' lodge for student use from native pine, planted and trimmed trees, employed two staff members during the summer of 1974 to develop an environmental education curriculum for our school.

Our students in grades one through six utilize our Outdoor Education Center for daytime study during the regular school day.

Grades seven and eight utilize the Outdoor Education Center for overnight experiences, sponsored and directed by the school each fall and spring.

Residents of the West Salem School District utilize the center for picnics, camping, and hunting.

Future Plans: We plan to update our Environmental Education Curriculum. As they are published and available, we plan to send staff members to workshops and conventions.

Publications: Our Curriculum Guide, Trail Guides, and Identification Booklet for the Trails have been produced.

-E. Ertz

PROGRAM TITLE: ENERGY AND US

DIRECTOR: Roxie Dever and Elizabeth Horsch, Kelly Walsh High School, 3500 E. 12th Street, Casper, Wyoming 82601. (307)237-2511

The primary objective of the project is to give high school students an opportunity to collect and analyze data relating to the environmental impact of power plant siting and the related factors of land use and socio-economic conditions which accompany this kind of industrial development. In addition, the program attempts to provide the students with the opportunity to participate in the legislative process by making known their findings to state and federal bodies drafting legislation concerning plant siting and land use.

To achieve this, approximately fifty high school students have been involved in a two year study. The first year of the project was an intensive study of the conversion of stored energy to electrical energy using a coal fired steam generating plant in the area as the focus of the study. Included in this study was an analysis of the impact of the power plant on air and water quality, a survey of the effects of coal strip mining and mined land reclamation, and the social and economic effects of the plant and its employees on the communities in the area. The second and current year of the project will examine the present uses of a plot of land and will attempt to develop useful models for evaluating the impact of locating an energy conversion plant on this plot of land.

The project developed in response to student questions concerning an environmental incident. A temperature inversion caused the students to become aware of the obvious effects of converting coal to electricity but the questions raised revealed how little students knew about the less evident effects. Using their questions as the basis of the study, a plan was developed to make the study a cooperative venture with the power plant. Federal funding was secured under the Environmental Education Act of 1970.

Lack of environmental materials suited to the reading level of high school students was one of the major obstacles. To overcome this resource people in the community were enlisted to become "walking textbooks". Methods and techniques which can be used by students to measure socio-economic factors are nonexistent. Students methods for making quantitative measurement of physical and biological conditions are also scarce. To overcome these problems, the project attempted to develop useful methods for student data collecting.

The major products of the project are (1) a report of student findings on environmental impact (2) inexpensive kits for testing water quality which can be used by upper elementary and junior high school students, and (3) outlines for organizing a student environmental impact study.

-E. Horsch

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PROGRAM TITLE: KEMMERER OUTDOOR LABORATORY

DIRECTOR: B. L. Mowry, Kemmerer Junior-Senior High School,
Kemmerer, Wyoming 83101.

Project is now inactive.

PART III:

Projects and Programs Not Directly Related to Elementary and Secondary Schools

PROGRAM TITLE: UNIVERSITY OF ALABAMA IN HUNTSVILLE CERTIFICATE PROGRAM IN ENVIRONMENTAL SCIENCES

DIRECTOR: Dr. Kenneth E. Johnson, Director, Center for Environmental and Energy Studies, P.O. Box 1247, Huntsville, Alabama 35807. (205)895-6362

Objective: Practicing professionals, and those who evolve to managerial positions, will continue to be called upon to perceive and evaluate the interactions of natural processes and the effect of man's activities on them. On this premise, the University of Alabama in Huntsville undertook to establish a program to educate science, engineering, and mathematics majors both in their chosen field and in the basics of all natural science and their environmental applications.

Implementation of Objectives: By selection of prescribed courses in lieu of electives the student can satisfy the requirements for the Certificate in Environmental Science plus his bachelors degree within the traditional four-years of study.

Curriculum: The cluster of courses for the Environmental Certificate included basic science courses most of which would normally be included in the major curriculum (I), environmental science courses (II), and any two of several advanced environmental science and engineering courses (III).
I. Basic Sciences (all required unless exempted by advanced placement and/or testing in each case): General Biology; General Chemistry; General Physics; Atmospheric and Planetary Science: Physical Geology; Two basic courses in Statistics (ST) and/or Computer Science (CS).
II. Environmental Core (all required): Principles of Ecology; Environmental Climatology; Environmental Geology and Hydrology; Pollution Problems.
III. Advanced Level Specialization (only six hours required, selection depending on major, interest, prerequisite, etc.): Environmental Microbiology; Limnology; Marine Ecology; Environmental Chemistry: Environmental Engineering; Human Factors; Management Science; Systems Analysis; Noise Pollution; Environmental Meteorology: Environmental Data Analysis.

Organization of Program: This interdisciplinary program is a joint effort of the School of Science and Engineering and the Center for Environmental and Energy Studies of the School of Graduate Studies and Research. The Committee administering the program if chaired by Dr. Johnson.

Research and Related Activities: The Center for Environmental and Energy Studies conducts research and related activities in cooperation with local government, industries, and national and state agencies. Students, professors, and research associates are involved in the following: environmental impact statements and assessments; support of research relative to preparation of an environmental geology and hydrology atlas; analysis and modeling of gaseous air pollution; management of air pollution data;

application of remotely-sensed data to prevention of ground water contamination; support of a water management project; use of solar energy to heat and cool buildings; combustion and automotive emissions; noise pollution.

-Dr. F. L. Doyle

PROGRAM TITLE: ENVIRONMENTAL EDUCATION

DIRECTOR: Edward Passerini, Box 6211, University, Alabama 35486. (205)348-4600

We have:

1. Two courses on environmental education and others in ecology, environmental engineering, etc.
2. A minor and soon a major in environmental education.
3. A statewide weekly one hour program on ETV.
4. No problems except apathy, ignorance, etc.
5. Plans for programs in public schools, etc.

-E. Passerini

PROGRAM TITLE: ENVIRONMENT-BASED EDUCATION PROJECT

DIRECTOR: Robert C. Mings, Center for Environmental Studies, Department of Geography, Arizona State University, Tempe, Arizona 85281.

The Center for Environmental Studies of Arizona State University and the Association of American Geographers have been awarded a contract in response to DHEW/Office of Education Solicitation #RFP 74-50, to "design, develop, and prepare a report on natural environment-based educational activities, and environmental education." The research will focus on the inventory, evaluation, and recommendations specifically pertinent to "environment-based" environmental education in the United States. This is taken to include those aspects of environmental education that particularly promote and utilize outdoor or resources related methods, materials, and facilities. Such activities appear throughout the disciplinary, institutional, and learning-level spectra.

The Study will include the following:
1. An historical perspective and assessment of the role, development, and effectiveness of environment-based educational efforts. These include the various activities that have been performed traditionally under the aegis of conservation, resource-use, or resource management. Many of these activities have, however, existed external to the usual educational systems.

2. A sampled inventory and evaluation of existing environment-based environmental education.
3. The evaluations in 1 and 2 above will emphasize the role and effectiveness of environment-based education relative to the varied methods and objectives of environmental education generally and to the provisions of the Environmental Education Act specifically. Particular attention will be given to problem-solving, prescriptive attributes of environment-based methods.
4. Recommendations will be developed which (a) identify critical themes and methods in environment-based education, (b) relate them to national needs in environmental education, and (c) suggest means of incorporating them in the planning and teaching of environmental education.

-R. C. Mings

PROGRAM TITLE: NORTHERN CALIFORNIA COMMITTEE FOR ENVIRONMENTAL INFORMATION ENVIRONMENTAL EDUCATION PROJECT

DIRECTOR: Drs. Selina Bendix and Richard Garcia, Bendix Research Environmental Consultants, 1103 The Alameda, Berkeley, California 94707. (415)525-8400

Scope: alternative sources of energy; alternative means of dealing with urban, forestry, and agricultural pest problems.

Target: high school, lower division college, ecoactivists.

History: response to articles in our newsletter EnFo has led us to expand into a program of materials for classroom and environmental group use. We have secured a grant under P.L. 91-516.

Materials: each sequence will include the following materials: 1) text unit at high school reading level; 2) text unit for college-teacher preparation use; 3) annotated bibliography; 4) selected readings. Category 4 was added after we found that some useful material was not readily available. Materials will be classroom tested and distributed to interested teachers, ecology centers, etc.

We have produced no publications yet; a number are expected in 1975.

-S. Bendix

PROGRAM TITLE: BRINGING ENVIRONMENTAL AWARENESS TO ENGINEERS

DIRECTOR: Christian Nelson, Chief, Interpretive Department,
East Bay Regional Park District, 11500 Skyline Boulevard, Oakland,
California 94619. Business address: Environmental Education
Center, Tilden Nature Area, Berkeley, California 94708.
(415)525-2233

The purpose of the project is to develop a sense of awareness and responsibility for proper action toward the impact of public works projects on natural plant and wildlife communities. The course involves two pre-trip meetings with tests and discussions, seven field trips, and two post-trip meetings for test and practical exercise in impact assessment. The project is aimed at engineers from a broad variety of agencies including city, county, special district and state.

A pilot program with the California Division of Highways (now California Transportation Department) began in 1971. We have conducted seven courses with them and two with engineers from Bay Toll Crossing Authority. The success and enthusiasm on the part of the engineers inspired us to expand the program and involve engineers at local levels.

We conduct a year round outdoor education program with groups from pre-school to senior citizens, including such groups as convalescent home patients and physically and emotionally handicapped people. The bulk of our program centers around grades K-6, and weekend family and special adult programs. We utilize some materials from other agencies, but rely most heavily on the creative initiative of our staff of twelve naturalists.

The major problem we have encountered aside from normal busing with the school districts has been their lack of funds. We have offered free trips wherever possible and are now trying to eliminate our fee system. However, this has not been a problem in training engineers. The major problem we envision in the future is convincing city and special district agencies that their engineering staffs should have the environmental awareness training. We might be able to reduce this problem by building upon the success and enthusiasm of previous participants in the courses, as well as effective use of the media in presenting a new image to the public, who often are critical of the agencies.

We hope to make contact and engage as many engineering agencies in Alameda and Contra Costa Counties as possible over the next three years. As a result of these courses, we plan to produce a guidebook on the importance, methodology, philosophy, results, etc. of the environmental awareness program and its application concerning engineering curricula.

We will make available the above guidebook, attitude tests, evaluation forms, etc. that we will be employing this year. Articles on the program conducted so far have appeared in a couple of trade journals.

-Ronald A. Russo
Instructor/Naturalist

PROGRAM TITLE: OUTDOOR BIOLOGY INSTRUCTIONAL STRATEGIES

CONTACT: OBIS, Lawrence Hall of Science, University of California - Berkeley, California 94720.

One of the more unique programs in the field of environmental education is emerging out of the Lawrence Hall of Science at the University of California at Berkeley. Outdoor Biology Instructional Strategies, otherwise known as OBIS, stands as one of the few EE schemes to focus on community youth groups as the audience for teaching basic biological principles. In the words of Bob Knott, Assistant Director, the OBIS goal is to give the kids "as much meaningful contact with the world about them as possible."

The program was designed for and partially by those 10-15 year old Girl Scouts, Boy Scouts, 4-H members, summer campers, etc., that hunger for an out-of-school, outdoor learning experience which is fun. OBIS has discovered how to stimulate natural curiosity.

The underlying OBIS philosophy proposes that a basic understanding of biological/environmental interaction is necessary in making decisions about the world today. Watching a lawn grow "out of control", for example, is a method of learning about principles applicable to many other parts of life.

Flexibly structured, the program enables a group leader, regardless of background, to utilize whatever outdoor area is available while guiding children through biological discovery sessions. Each of the 24 activity units included in the OBIS package may be approached through a variety of channels - arts and crafts, history, recreation, the social sciences - or combined. All of these units, such as "What Lives Here?" or "Invent a Plant", contain teacher instructions and suggested equipment to be used by the group.

Funded by the National Science Foundation in 1972, OBIS was the brainchild of three Lawrence Hall of Science Directors, Watson M. Laetsch, Dr. Chester Lawson and Dr. Herbert Thier, who recognized the need for biological learning materials that could be used outdoors and out of school. Strategies were tested, modified and retested until the first two units, "Lawn" and "Pond", were published in the fall of 1973. In January, 1974, OBIS ran a California-wide workshop for group leaders which resulted from a survey asking 150 San Francisco Bay community groups how important outdoor education was to their program. Facilities, resources, time schedules and general needs of the groups were discussed and applied to OBIS, producing a more flexible and broader program.

In May 1974, the first OBIS package of 24 kits was completed and 150 more are targeted for completion within the next 5 years. A training session was also held in May for youth group leaders expressing an interest in establishing OBIS programs throughout the country. The session produced 10 nationally distributed field centers, now holding their own workshops and recruiting participants.

"Moderators between kids and the world outside", as Bob Knott expressed it, the OBIS concept has managed to foster an alternative to in-school learning - a type of science literacy on the community level.

For further information on OBIS or to purchase the kit ($7.50), write the address above.

-From: Environmental Education Report
October 1974

PROGRAM TITLE: WESTERN REGIONAL ENVIRONMENTAL EDUCATION COUNCIL

DIRECTOR: Rudolph J. H. Schafer, Consultant, Environmental Education, 721 Capitol Mall, Sacramento, California 95814. (916)445-0361

After three years of steadily increasing growth and activity, the Western Regional Environmental Education Council (WREEC) is beginning to look beyond its Title V funding and strict orientation to the 13 Western states it serves. At a five-day semi-annual meeting held in Portland during July 1974, Council participants reviewed the status of the individual state programs, studied newly prepared materials and favored expansion of future Council activities.

Under consideration is a nation-wide network to coordinate activities of groups involved in environmental education programs. The group also sees itself as eventually competing for grants from private and governmental organizations wishing expertise and assistance in developing environmental education materials.

The Council is incorporated as a non-profit foundation, currently funded in part through an OE Title V Section 505 grant which terminates at the end of Fiscal Year 1975. Continuation of support has already been established, however, most notably by an $80,000 grant from the American Forestry Institute to develop K-12 curriculum packages on the forest and forest conservation. Those materials were expected to be completed by February 1975.

Those participating in the Council represent the Departments of Education and principal resource management agencies of the States of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. The Council publishes a newsletter, Eco-Notes.

-From: Environmental Education Report
September 1974

ERIC DOCUMENTS:
1. Conservation and Environmental Education in the Western States. SE 018 100
2. Western Regional Environmental Education Council Resource Guide. SE 018 181

PROGRAM TITLE: ENVIRONMENTAL LIVING PROGRAM

DIRECTOR: John H. Davis, Regional Director, Western Region,
National Park Service, 450 Golden Gate Avenue, Box 36063,
San Francisco, California 94102.

The Environmental Living Program of the State and National Parks of Arizona and California aims at creating an understanding of our environment through living in and recreating natural and cultural environments of the past. This program is offered to schools and other organizations at a variety of historic settings. Yet it is an educational experience which remains to be created largely by the participants themselves.

Highlights of the experience include:
1. Increased knowledge of American history, society and natural world.
2. Discussion and comparison of the past with the present environment - and those to come.
3. Individual roles and learning opportunities.
4. Group tasks and problem-solving: trying one's hand at basic responsibilities and new skills.
5. Group interaction: getting to know each other and what each as a member of the group has to offer.

The Environmental Living Program involves:
1. Teacher training - on-site overnight workshop (accredited on request).
2. Pre-visit - a day time, one or two hour exploration of the site by the class.
3. Classroom activities - study, student planning and preparation for the overnight.
4. Overnight experience - students and adult leaders move on-site for an overnight stay. Involves role-playing, problem solving, and fun.
5. Post-visit - evaluation; and whatever the teacher and students make of the visit in what is left of the school year.

Consider the following:
Four concerns are basic to every Environmental Living Project - food, equipment, clean-up, and regulation. These must be satisfied, be planned for by each group one way or another. Simple, really: just as if planning a camping trip. But now translate these tasks to another time or another culture! The sense of adventure remains, but the challenge doubles.

We can see these same concerns as the life system of every society, the life system of our society, from which many other tasks and projects can grow. But in this program processes are more important than facts.

Therefore, leadership is to be provided by the school or organization. As much as possible, this is their program.

Cost to the school or organization is controlled by the group. They provide their own transportation and groceries. However, the parks involved usually charge no fees.

Reservation space is limited by budgets, man-power, and a desire for quality on the part of individual parks. If your group wishes to participate in this program you should contact one of the units listed below:
1. John Muir National Historic Site, 4202 Alhambra Avenue, Martinez, California 94553. (415)228-8860. Offers the life of an 1880's Chinese field hand, amid John Muir's historic orchards and gardens in a suburban environment.
2. Petaluma Adobe State Historic Park, Sonoma Area Office, P.O. Box 167, Sonoma, California 95476. (707)762-4871. Offers a Mexican California rancho environment overlooking a modern town.
3. Fort Point National Historic Site, Presidio of San Francisco, P.O. Box 9167, San Francisco, California 94129. (415)556-1693. Offers a Civil War military garrison in a dramatic natural setting.
4. Hyde Street Pier, 2905 Hyde Street, San Francisco, California 94109. (415)441-2386. This State Park offers a turn-of-the-century sailor's environment in contrast to urban life.
5. Tubac State Historic Park, Box 1296, Tubac, Arizona 85640. (602)398-2252. Offers a 19th century schoolroom environment. (No overnight facilities available at present).
6. Tumacacori National Monument, Box 67, Tumacacori, Arizona 85640. (602)398-2341. Spanish colonial mission community experience of the 17th and early 18th centuries.

Problems:
Practically speaking the program requires a sensitive understanding between both park managers and classes and teachers using the sites on program objectives. Managers are no longer the "leaders," as they see themselves, and that creates numerous problems. The only solution is a continual effort to clarify roles: the park person is primarily a data source, not a teacher or facilitator. These roles can best be realized through teacher on-site workshops.

Future Plans:
Plans for the future are ambitious and underway. The National Park Service's Washington office has contracted a teacher-writer in Arizona to prepare a teachers' kit or set of materials on the program for national distribution early next year. This will thereby become an official program of the National Bicentennial.

In fact, it is being done in cooperation with the American Revolutionary Bicentennial Administration. The Administration has contracted for the first 25,000 sets, we understand.

The Environmental Living Program is an outgrowth of the National Park Service's National Environmental Study Area Program. We include the Silver Burdett NEED materials, produced in cooperation with our office. In addition, we use The Strands Walk written by William Taylor, the author of the Environmental Living Program and Environmental Education Specialist for the Western Region of the National Park Service.

Another set of materials we have found most useful are the ES cards of Essentia, Evergreen State College in Washington State.

-John H. Davis

PROGRAM TITLE: SIERRA CLUB INFORMATION SERVICES

DIRECTOR: Wendy K. Pettigrew, Sierra Club, Mills Tower, San Francisco, California 94104.

We still send printed materials to teachers upon request, and have a handbook A Beginning and Handbook for Ecology Action that are enclosed in the Teacher's Packet which we sell for $3.00. Also in this packet are samples of most of our reprints from the Sierra Club Bulletin, resource sheets on various subjects and our resource sheets on environmental education, film lists, book lists, etc. We send out approximately 100-150 of these packets each year, and many more packets on other topics.

In addition, we answer many letters from the students themselves on all manner of subjects, using the same printed materials when applicable, or else we do the necessary research in our files and library to answer their questions. Obviously there is a limit to what we can do but at least every letter gets an answer.

-W. Pettigrew

ERIC DOCUMENTS:

1. Handbook for Ecology Action. ED 071 865
2. A Beginning. ED 071 866

PROGRAM TITLE: CONSERVATION EDUCATION ASSOCIATION

DIRECTOR: Ms. Jane Westenberger, President, Conservation Education Association, U.S. Forest Service, Office of Information, 630 Sansome Street, San Francisco, California 94111.

The Conservation Education Association, founded in 1953, currently has a total membership of approximately 550 persons and many, both within and outside the organization, view this as a pivotal time for CEA. Ms. Jane Westenberger, who is beginning the second year of a two-year term as CEA's president, calls it "a plateau that many groups go through when they're neither a large nor a small organization." According to Westenberger, CEA has been at this "swingpoint" for the past several years and now, with a revamped budget, she sees the possibility of expansion and broadening of scope. "There's been a great deal of brainstorming and consideration given to methods of increasing CEA member activity," she adds. Dr. Dean Bennett, Director of the Maine Environmental Education Project and DEA Board member, has recently completed a survey of member attitudes which, Westenberger says, will help in determining the future direction of the organization.

-From: Environmental Education Report
September 1974

ERIC DOCUMENTS:
1. From Solid Waste to Energy. ED 082 974
2. Environmental Progress Through Cooperation in Education.
ED 083 014

PROGRAM TITLE: DEVELOPMENT OF LEARNING MODULES ON EXPLORATION OF FUTURE ENERGY SOURCES

DIRECTOR: Dr. Clifford Houston, Division of Continuing Education, University of Colorado, 970 Aurora Avenue, Boulder, Colorado 80302. (303)492-7416

Objectives:
The Division of Continuing Education at the University of Colorado was awarded an HEW environmental education grant (P.L. 91-516) to produce nine modules on the exploration of energy sources for the future. The length of the project is one year and started on July 1, 1974. The subject areas are an overview of energy sources, geothermal, oil shale, coal, gas stimulation by atomic fracturing, nuclear, wind, solar and tar sands. Each film will be accompanied by instructional materials and a study guide. The intended audience is high school and junior college students and the scripts will be written in laymen's terms. The modules, however, will be available for nationwide public distribution not only as a curricular program for students, but for organized

groups of citizens and independent study. These programs will be available to any of the above and will be definitely used by the University in courses.

History:
By the spring of 1973, it must have seemed to the average American citizen that great strides had been made toward the retarding of such serious environmental problems as air pollution, refuse disposal and questionable ecological land use practices. The reassessment of personal and national life styles was being thoughtfully studied and corrective plans of action were gaining citizen acceptance.

This being the general mood, it was a shocking experience for a heretofore non-deprived generation to face the stark reality of an energy shortage during the summer and following months of 1973. (The energy crunch first started in Colorado, while the rest of the nation still had abundant energy.) The specter of the shortage and its concomitant effects on so many facets of our lives still causes great concern to most citizens. These same prople are anxious to learn what the energy crisis is all about and how it will affect their welfare. It would appear that most of these citizens are ready and willing to support viable development of alternative sources of energy. What they lacked was sound information so they could answer for themselves.

With this in mind, the University of Colorado submitted a proposal to the U.S. Office of Education for environmental funds in which to produce nine films and related study materials on alternate sources of energy. Presently, all efforts are being directed to accomplish this task by June 30, 1975.

Activities:
The Division of Continuing Education at the University of Colorado is presently involved in the program described above. This is the first in what will, in all probability, be a commitment by this Division to become more deeply involved in environmental education.

Problems:
The main problem encountered on this project so far is what was initially conceptualized for the making of the film and what was decided later to attempt. Originally, each film was going to be a talking face and was therefore budgeted as such. We later realized that in marketing a film of this nature, it had to have good graphics and excellent action shots. We have, therefore, attempted to work in conjunction with other HEW programs, borrow footage from government and industry and make a projection worthy of nationwide distribution.

Plans:
The Division is presently looking at a distribution system for the modules and may submit a proposal for federal monies in

order to have national distribution. Even without further federal monies, the Division's Bureau of Educational Media through their membership in the Mountain Plains Educational Media Council and the Consortium of University Film Libraries should reach 250,000 participants during the first 18 months.

Publications:
Unfortunately, the project is so new that we are unable to provide bibliographic materials, although they will be included with reference materials. The project has an evaluation specialist whose function is the identification of test audiences, preparation of evaluation instruments, the conducting of filed tests and evaluating the results of both process and product.

-Martha K. Evans
Assistant Project Administrator

PROGRAM TITLE: THORNE ECOLOGICAL INSTITUTE

CONTACT: Joan Martin, Assistant Director for Education, Thorne Ecological Institute, 2305 Canyon Boulevard, Boulder, Colorado 80302.

The Thorne Ecological Institute targets the majority of its education programs for adults. Although most environmental educators will agree that EE extends beyond the K-12 experience, few concentrate on the adult population, those who are currently making decisions and influencing our youth.

In the summer of 1967, Thorne Ecological Institute desgined and implemented the Seminar on Environmental Arts and Sciences (SEAS). The purpose of SEAS was to offer a unique approach to environmental problems by developing an understanding of the concepts and principles of ecology among the nation's decision makers. Participant response has led this seminar to continue annually in Aspen and has provided the basis for an increasing number of adult educational programs.

Thorne developed additional adult programs because they saw a need to go beyond clarification of the human role in the living system. Many participants were concerned with specific issues, specific impacts and with their own specific problems. Thorne answered these needs by instituting the following programs:
1. SEAS Workshops: Offered for decision-makers who already have an understanding of the ecological principles addressed in the SEAS seminar, the workshops are for those who want to apply these principles to topics such as corporate responsibility, law or quality of life. This year's workshop topic was economic growth, its purpose was to help participants harmonize socio/economic needs with environmental imperatives. Each workshop is offered four or five times annually in major cities across the nation.

2. Resource Development Impact Seminars: These seminars focus on exploring impacts, developing a better understanding of impacts and applying new perspectives and solutions to participant's problems. Meetings may revolve around the impact of timber management, increased mining operations, industrial development on rivers, etc. Participants include anyone involved in the specific issue under study and opposing viewpoints are encouraged. On site involvement is essential; the location of each workshop is determined by the impact to be discussed.
3. Local Problem Solving Seminars: While most of Thorne's programs are designed to have national or regional significance, these seminars are intended to facilitate local problem solving. They provide a medium for individuals from a wide variety of backgrounds to harmonize their needs and interests and to arrive at possible solutions.
4. Corporate Seminars: Thorne sponsors seminars to meet specific corporate needs. The meetings may be similar to any of the above or may be specially designed. Seminars have been conducted for companies such as Public Service Company and AMAX, Inc.

Thorne Ecological Institute is also involved with an educational program for pre-school through high school youth and has 20 years of experience in applied ecological research.

-From: Environmental Education Report
December 1974

PROGRAM TITLE: COLORADO STATE PLAN FOR ENVIRONMENTAL EDUCATION

DIRECTOR: Richard E. Rocchio, Center for Research and Education, 2010 E. 17th Avenue, Denver, Colorado 80206.
(303)388-6311

Colorado's proposed Environmental Education Council and Clearinghouse, funded under P.L. 91-516, never did get off the ground. Therefore we have no projects directly emanating from the State Planning effort, and both the EE planning staff and the citizens' advisory council for the master plan development have been disbanded. Center for Research and Education sponsored a national conference on the master planning process in environmental education in May 1973, with resulting documentation.

-Eve Lee

ERIC DOCUMENTS:
1. Colorado Interim Master Plan for Environmental Education. ED 068 421
2. State Environmental Education Master Planning (Estes Park, Colorado, May 17-19, 1973). ED 081 593
3. Colorado Environmental Education Master Plan. Supplement to the Colorado Interim Master Plan for Environmental Education. ED 088 775
4. Planning for Environmental Education: The Nation's Experience 1970-73. ED 096 516

PROGRAM TITLE: KEEP COLORADO BEAUTIFUL, INC.

DIRECTOR: Mrs. Robert (Beverly) Fleming, Executive Director, 4260 E. Evans Avenue, Denver, Colorado 80222. (303)757-2272

Keep Colorado Beautiful is a statewide, tax exempt, privately funded citizen's organization to help coordinate efforts of individuals, clubs, organizations and government agencies on the litter and solid waste problems in Colorado, similar in scope and program to Keep American Beautiful on a national scale. Organized in April, 1967, by a committee appointed by Governor Love, KCB is making a major thrust in the environmental education field directed at conservation of natural resources. Starting in 1971, partial financial support has come from the State through the Department of Natural Resources.

A broad educational program alerting Coloradoans to the growing desecration of both our natural and man-made environment is vital for the social and economic well-being of our citizens and visitors. Often it is only an awareness, impetus or detailed suggestion necessary to get people busy on correcting a menace. It is hoped that Keep Colorado Beautiful can provide a spark for effective action.

Keep Colorado Beautiful acts as an aid to groups, clubs, schools, churches or businesses by providing the following:
1. Statewide publicity and promotion of the concept Keep Colorado Beautiful.
2. Coordination of efforts of individuals, groups, industry and government agencies.
3. Information on how to handle clean-ups, beautification programs and solid waste disposal problems in your area (where to obtain free movies, literature, displays, speakers, litter bags, award information, etc.).
4. Year-around service of any kind pertaining to the litter, solid waste and related problems.
5. Contact with law enforcement agencies to seek support of our efforts under existing laws and ordinances.

6. Impetus in communities lacking organized environmental groups.
7. Our goal - a clean state.

-Mrs. R. Fleming

PROGRAM TITLE: BOLTON INSTITUTE

DIRECTOR: Ms. Joan Nicholson, President, The Bolton Institute, Suite 302, 1835 K Street N.W., Washington, D.C. 20006.

The stated goal of the Bolton Institute is to help bring a harmonious balance between human societies and natural systems, specifically by serving as an interface between industry, government and environmentalists. Bolton president Joan Nicholson stresses that the institute, a private, non-profit organization based in Washington, D.C., does not advocate any one philosophy aside from the essential need for all sectors of society to cooperate towards a stable environment.

The tools for facilitating this cooperation are basic and obvious, found in concepts like self-interest, economic advantage and political benefit. The trick is to demonstrate to all sectors of society that the long-term considerations are to the benefit of all, economically, politically and socially.

Bolton aims to achieve this goal through education of the citizen-professional and citizen-consumer. During the coming year, the Institute plans to begin publication of the Careful Technology Reporter which will recognize environmentally sound production ideas and translate them into economically beneficial practices. The Institute will also sponsor educational workshops for business and industry to encourage voluntary environmental guidelines as being in a particular company's own self interest. An example given pertained to loan officers who, when reviewing an application, would also determine the environmental soundness of a project - thus avoiding potential lawsuits. Another Bolton effort will be to continue their workshops on the writing of comprehensive environmental impact statements.

The Institute could not exist without the conflict between industry and environmentalists but sees the conflict as an opportunity for positive and truly progressive solutions. "Doomsday-itis on the part of many environmentalists is as damaging as the foot dragging by industry - we all need to recognize tradeoffs and get on with it."

Bolton acknowledges five critical areas necessary to a complete environmental education program:
1. the environment from a biological standpoint.
2. the economic systems.
3. technological applications.
4. energy resources.
5. natural resources and distribution.

Long range goals for the Institute will tend away from concentration on formal K-12 curriculum development as exhibited by their elementary and high school Energy Conservation Corps project and more towards quasi-international efforts.

-From: Environmental Education Report
November 1974

PROGRAM TITLE: ENERGY CONSERVATION CORPS

DIRECTOR: Ms. Joan Nicholson, President, The Bolton Institute,
1835 K Street, N.W., Washington, D.C. 20006. (202)872-1014

Last spring six workshops in New England - one in each state - initiated a pilot program for students and teachers on ways to save the earth's energy and natural resources. The Energy Conservation Corps workshops were the brainchild of several national, state, and private organizations. The program will be expanded this fall with a program or workshops that expects to involve representatives from every high school in New England.

When the Federal Energy Administration's Office of Energy Conservation presented a grant to the U.S. National Commission for UNESCO in March 1974, the Commission arranged for the Bolton institute, a nonprofit organization in Washington, D.C. specializing in environmental research and education, to administer the program. The state departments of education in the New England states are closely involved. If the project is successful in New England, similar programs across the nation will begin.

At the workshops, students and teachers will have a chance to lay constructive plans of action to stimulate school and community support for energy conservation and promote public awareness of the energy crisis, which is not over. Proposals have ranged from sponsoring a comprehensive house weather-proofing campaign, to having senior high school students teach energy conservation to elementary pupils. In Connecticut, one school was going to close for a month last winter to save about 15,000 gallons of fuel, but a teacher and his class proved that the school could save about 80,000 gallons by turning down the thermostat and making some simple improvements.

-NSTA News Bulletin
October 1974

PROGRAM TITLE: THE NATIONAL WILDLIFE FEDERATION - EDUCATIONAL SERVICES

DIRECTOR: Thomas L. Kimball, Executive Vice President, 1412 16th Street, N.W., Washington, D.C. 20036. (202)483-1550

The National Wildlife Federation seeks to help people understand problems relating to wildlife and the environment. Along with creating this awareness of the environment, the Federation aims to help individuals see how they can have a role in solving environmental problems. This is accomplished primarily through dissemination of information concerning wildlife and the environment.

The National Wildlife Federation was established in 1936. In the middle of the 1930's it was apparent to some people that concerted efforts had to be made to conserve our wildlife and natural resources. At that relatively early point in the conservation movement, there were individuals who appreciated the fact that wildlife and human life are closely allied. When wildlife is threatened because of a deteriorating environment, all life is in danger. This has been one of the Federation's major premises since its beginnings. A well-informed public is essential to a healthy environment.

The Federation works in many different ways to educate Americans about the need for wise use and proper management of our natural resources. This is accomplished in many different ways including:
1. National Wildlife Week: a yearly reminder of the need to become actively involved with improving our environment. Wildlife Week Teacher's kits are available free from the Federation's headquarters at 1412 16th Street, N.W., Washington, D.C. 20036, beginning about the first of January each year. Wildlife Week has been observed each year by the Federation since 1938. The week is observed during the week that contains the first day of Spring, around the 20th of March.

2. Conservation Publications: National Wildlife, a bimonthly conservation magazine for National Associate Members; International Wildlife, a bimonthly conservation magazine for international Associate Members; Ranger Rick's Nature Magazine, published ten times a year as a benefit of Ranger Rick's Nature Club membership for children; For Class and Club, the teaching guide which complements the children's magazine; Conservation News, a semi-monthly, 16-page newsletter available upon request to anyone interested in natural resource problems and issues; Conservation Report, a comprehensive weekly digest of national conservation legislation; Conservation Directory, a comprehensive list of organizations and people in the conservation field, revised annually; Environmental Discovery Units, helping teachers of kindergarten through twelfth grade incorporate ecology into their classrooms; Environmental Education Publications, over three quarters of a million pieces of conservation materials distributed to youth groups, teachers, and interested citizens annually; Press releases and filmed or taped public service announcements to television and radio stations.

3. Financial grants to promising graduate students in the field of natural resource study.
4. NWF Conservation Consultant Program: over 300 volunteer experts around the country with a great range of environmental specialists, providing comments and testimony on federal programs and proposals.
5. NWF Hot Line Program: corps of concerned citizens who can respond to "hot" conservation issues as they arise.
6. NWF Youth Ecology Camp, held annually. Encourages young people to enjoy outdoor living and participate in solving environmental problems.
7. NWF Conservation Safaris to outstanding natural areas in the world, a chance for Associate Members to study and enjoy unique wildlife and natural beauty while meeting with resource managers.
8. NWF Conservation Summits, a week of ecology classes and outdoor recreation for Associate Members and their families. In 1974 Summits were held in Black Mountain, North Carolina, Estes Park, Colorado, and in Pacific Grove, California.
9. NWF Resources Defense Unit, a staff of attorneys who carry out the Federation's legal activities on issues that affect the environment.
10. NWF Staff Personnel on invitation making presentations before Congress and expressing our positions to Federal, state and local governmental units.
11. NWF Regional Field Executives who cover the Nation and assist conservationists and environmentalists with local, state, or regional issues and problems.
12. National Conservation Conference, held each December, a forum where leaders of citizens' groups, industry, and government can meet and discuss coordinated conservation action.
13. Participation in Teachers' Workshops and Conferences: Cooperation with women's clubs, garden groups, and sportsmen's organizations.
14. Nature Trail at our Laurel Ridge Conservation Education Center is open to the public throughout the year. On a regular basis, teachers and students visit the Center for guided walks through the area.

Current plans are to increase the size of our Nature Trail to about twice the present size. A visitors hall is being developed at the Laurel Ridge Center in Vienna, Virginia. Long range plans may include a national conservation library.

-John C. Stone, Coordinator
Educational Services

ERIC DOCUMENTS:
1. To Save the Earth. A Tool Kit to Our Environmental Quality Index. ED 068 337
2. National Wildlife, Special Issue: Endangered Species. ED 087 640
3. Conservation Directory, 1974. ED 093 653
4. Brine Shrimp and Their Habitat. SE 018 514
5. Change in a Small Ecosystem. SE 018 515

6. Color and Change. SE 018 516
7. Contour Mapping. SE 018 517
8. Differences in Living Things. SE 018 518
9. Fish and Water Temperature. SE 018 519
10. Genetic Variation. SE 018 520
11. Man's Habitat - The City. SE 018 521
12. Nature Hunt. SE 018 522
13. Nature's Part in Art. SE 018 523
14. Oaks, Acorns, Climate, and Squirrels. SE 018 524
15. Outdoor Fun for Students. SE 018 525
16. Plant Puzzles. SE 018 526
17. Plants in the Classroom. SE 018 527
18. Sampling Button Populations. SE 018 528
19. Shadows. SE 018 529
20. Snow and Ice. SE 018 530
21. Soil. SE 018 531
22. Stream Profiles. SE 018 532
23. Tile Patterns and Graphs. SE 018 533
24. Transect Studies. SE 018 534

PROGRAM TITLE: THE INSTITUTE OF ECOLOGY (TIE)

CONTACT: Virginia Temple, Environmental Assembly, The Institute of Ecology, Suite 101, 1717 Massachusetts Avenue, N.W., Washington, D.C. 20036.

The Institute of Ecology (TIE) is an organization of over 100 research and teaching institutions in 11 western hemisphere countries. As the acronym implies, they have joined together to undertake ecologically-oriented research projects which normally would be beyond the capabilities of any of the institutions on their own. During its first four years, TIE has contracted for numerous major research and problem assessment activities, relying largely on volunteers who contribute their talent as needed.

But TEI was founded with a twofold purpose. In addition to fulfilling research contracts, the Institute was intended to have an equal responsibility in providing a two-way means of communication between the general public and the scientific community on important ecological issues. This was to be achieved through the TIE Assembly.

Up until now, however, the Assembly has been virtually nonexistent as TIE has concentrated all its efforts towards environmental research. But, as TIE Assembly staff member Virginia Temple comments, "the citizen participation and public involvement is crucial to prevent us (TIE) from becoming a fuddy, duddy remote research group and to prevent environmental problems from being misunderstood or worse yet, not known, by the public."

As a first step toward soliciting public involvement, TIE has recently invited 24 state/provincial/regional environmental co-ordinating councils in the United States and Canada to participate in a two-year experimental Associate Membership. According to Temple, interested responses have been received from most of the councils and five have elected to join.

The entire TIE Assembly planned to meet in Chicago February 1st to discuss priority issues the Institute should consider for the coming year. Temple said among those items to be considered are environmental education project areas and effective methods for implementing EE programs.

-From: Environmental Education Report
December 1974

PROGRAM TITLE: ENVIRONMENTAL EDUCATION PROGRAM, BLM

DIRECTOR: Phil DeLongchamps, U.S. Department of the Interior, Bureau of Management, Washington, D.C. 20240.

The Bureau of Land Management has employed a part-time EE coordinator since Earth Day, 1970, a policy changed recently with the appointment of Phil DeLongchamps as BLM's first full-time EE Specialist.

Formally Youth Program Specialist for the Youth Conservation Corps in the Department of Interior, DeLongchamps assumed his duties in early Septmeber and has contacted state and local representatives in BLM's 64 district offices to learn of their activities in EE, their degree of involvement in planning and to identify their needs and resources.

Once that information is compiled, DeLongchamps hopes to facilitate greater use of BLM's lands for EE projects and achieve a higher degree of cooperation and effectiveness between local offices and the areas they serve.

"BLM-managed lands are unique", he points out, "because they run the gamut, including old dumps and strip mines as well as virgin forests - ideal for students studying the environment, as well as man's effect on it."

DeLongchamps would like to duplicate a recent BLM effort in New Mexico where two office representatives visited major towns and schools in the state to determine interest in using BLM lands for EE projects.

BLM manages land in 11 western states and DeLongchamps looks forward to combining the resources of his office along with those of other government departments, namely the National Park Service and the U.S. Forest Service.

BLM has a number of publications on file. A list of these materials can be obtained by writing: U.S. Department of the Interior, Bureau of Management, Washington, D.C. 20240. Single copies are available from the Bureau at no charge; bulk requests must be made to the Government Printing Office.

-From: Environmental Education Report
October 1974

ERIC DOCUMENTS:

1. Environmental Issues. A Courtroom Simulation. ED 082 982
2. All Around You. An Environmental Study Guide. ED 083 117

PROGRAM TITLE: YOUTH CONSERVATION CORPS PROGRAM

CONTACT: The U.S. Department of Agriculture, Forest Service, Washington, D.C. 20250 or U.S. Department of the Interior, Washington, D.C. 20240.

On September 3, 1974, President Ford signed into law H.R. 14897, making permanent the government's Youth Conservation Corps Program. Initiated in 1971 as an experimental project, the law authorized up to $60 million each year to continue the joint state-federal program of summer employment for teenagers..

During the 8-week program, participants between the ages of 15 and 18 attend a coeducation YCC camp in their areas. Working to improve and maintain publicly owned land and nature areas, participants also attend lectures, slide shows and field classes aimed at teaching the environmental intricacies of the area. A test is administered during the first and last week of camp to measure the degree of environmental awareness gained during the summer. The results of these tests, compiled by the Institute for Social Research at the University of Michigan, indicate the average gain is substantial - equivalent to one academic year.

According to Don Boyd, head of the YCC program for the Department of Interior's Fish and Wildlife Service, approximately one million students applied for the program in summer, 1974, though only 10,000 could be accepted. Boyd foresees future YCC efforts to insure participants are representative of all social and economic backgrounds.

"This is difficult", he adds, "when you consider that roughly 90 percent of the participants are not in it for the money." ($1.90/hour for a 40-hour week)

Information on how to set up a YCC camp, its program and eligibility requirements is available from the Forest Service of USDI.

-From: Environmental Education Report
October 1974

PROGRAM TITLE: ENVIRONMENTAL EDUCATION, U.S. FOREST SERVICE

DIRECTOR: Ronald Greenwald, Environmental Education Specialist, National Forest Service, Department of Interior, Washington, D.C. 20250.

The National Forest Service in the Department of Interior has maintained a strong environmental education section for several years, which, until recently, was directed by Ms. Jane Westenberger, The Forest Service program concentrates heavily on regional EE workshops, and this focus is likely to continue with Westenberger's successor, Ron Greenwald.

Greenwald comes to Washington from Denver, Colorado, where, as the Forest Service Regional EE Officer, he was heavily involved in workshop planning and follow-up. He plans to expand the workshop program as their EE specialist in Washington.

The Forest Service workshops follow a similiar format and employ a variety of techniques to involve local teachers and conservationists in their process approach. Greenwald describes the workshops as "sessions to bring active or potential environmental educators together to learn how to implement EE programs at the local level."

During the workshops, which generally last 3½ days and involve about 50 participants, Forest Service-counseled facilitators employ techniques such as descriptive writing in haiku and cinquain style, drawings made from natural implements such as charcoal, berries and leaves and exercises such as "Six Bits" where members of a group must work together to solve a problem. The workshops are nearly always approved for college credit.

Greenwald hopes to begin another series of programs which he calls "second generation workshops". These will concentrate on land use planning and will consider all the trade-offs necessary for an acceptable land policy decision. He hopes to involve laymen from all sectors in the workshop process.

Greenwald echoes comments from other environmental educators when he notes an urgent need for coordination, particularly at the federal level, of EE efforts. Through the Forest Service workshops he hopes to continue the beginnings of cooperation at the regional level and from his position as national EE coordinator, work towards that cooperation in Washington.

-From: Environmental Education Report
November 1974

ERIC DOCUMENT:
Teaching Materials for Environmental Education. Investigating Your Environment. ED 086 491

PROGRAM TITLE: ENVIRONMENTAL EDUCATION, U.S. SOIL CONSERVATION SERVICE

DIRECTOR: Walter Jeske, Chief, Education and Publications Branch, Soil Conservation Service, U.S. Department of Agriculture, Washington, D.C. 20250.

The Soil Conservation Service in the Department of Agriculture has announced plans to sponsor several regional conferences around the country with the aim of evaluating current and future methods for teaching environmental education. According to Walter Jeske, Chief of the SCS Education and Publication Branch, the conferences will be arranged in cooperation with teacher education institutions and local SCS offices with the hope of fostering better cooperation between the two.

The first conference was scheduled for November 5, 6, and 7 at the University of Southwestern Louisiana in Lafayette with another to be held at Ball State University in Muncie, Indiana, during mid-April. Two additional conferences are in the planning stages.

-From: Environmental Education Report
November 1974

ERIC DOCUMENTS:
1. The American Environment: A Home Study Course. ED 081 618
2. Soil and Water Conservation Activities for Scouts. SE 018 321

PROGRAM TITLE: LAND USE PLANNING EDUCATION PROJECT

DIRECTOR: Ray Kirkland, Chamber of Commerce, 15 E. Orange Street, Lake City, Florida 32055. (904)752-3690

The objective of the project is to conduct an informative, impartial series of comprehensive and land use planning workshops featuring government and academic land use experts. The idea is to have informed citizens and government officials in order to put together a sound comprehensive land use plan for Columbia County (current population - 28,000).

The Jaycees and Chamber of Commerce put together a grant and submitted it to HEW. The grant was received in May 1974.

Workshops began the first week in November 1974.

Final report and video tapes will be available in June 1975.

-Gerry Hertel
Jaycee Project Coordinator

PROGRAM TITLE: ENVIRONMENTAL INFORMATION CENTER OF THE FLORIDA CONSERVATION FOUNDATION

DIRECTOR: William M. Partington, Jr., 935 Orange Avenue, Winter Park, Florida 32789. (305)644-5377

The Environmental Information Center of the Florida Conservation Foundation is engaged in research on environmental issues that concern a significant portion of the Florida public. A major function of the Center is to examine complicated or technical subjects and to explain them in terms that can be understood and used by non-specialists.

A broad range of specialists assist the Center in these activities by supplying documents, through personal discussions and by reviewing Center publications prior to publication. Reference materials are retained at the Center in the event that there are requests for further information.

Special reports have been written for other agencies, including:

-"Organic soil survey of agricultural area south of Lake Okeechobee," for Trustees of the Internal Improvement Fund, Tallahassee, Florida, June 17, 1971.

-"Report of investigation of the environmental effects of private waterfront canals," for Trustees of the Internal Improvement Fund, Tallahassee, Florida, February 1, 1972.

-"The relation of aquatic anomalies to marine pollution, with special reference to Florida," for the Department of Natural Resources and the Florida Audubon Society, April 15, 1973.

-"Environmental impact of leisure home development on a section of the Florida Gulf coast," for the American Society of Planning Officials and the Conservation Foundation, October 1, 1973.

Conferences organized and conducted by the Center:

-Symposium on preparation and evaluation of environmental impact statements (NEPA of 1969), at University of Miami, February 25, 1972.

-Conference on college level environmental education, at Rollins College, November 17-18, 1972.

-Water quality institute (on citizen participation in enacting P.L.92-500) for citizen leaders of eight southeastern states, Atlanta, Georgia, March 15-17, 1974.

-Public symposium on the Florida Power Corporation proposed 1980's nuclear power project, Orlando, Florida, May 31 - June 1, 1974.

-Assisted in organizing and conducting numerous workshops and other meetings for conservation groups, League of Women Voters, Florida Governor's Office, business groups, etc.

Evaluations:

-Distribution of draft environmental impact statements to research centers and university specialists for comments, for Division of State Planning, 1971 - 1973.

-Evaluation of environmental studies at Tollins College, June 1973.

-Review of environmental aspects of developments of regional impact for East Central Florida Regional Planning Council, September 1973 - June 1974.

ENFO newsletters are regularly published, based on staff research projects and conferences. Subjects have included several issues on energy use and supplies, refinery proposals for Florida, Ocala National Forest oil exploration, recycling, leisure home impact, Florida public land laws, land use legislation, canal water quality effects, sewage treatment, Big Cypress Swamp, management of Everglades muck farms, Florida water resources, Escambia Bay, Florida clean air plan, NEPA of 1969, pesticides, aquatic weeds, population growth, exotics, coral reefs, Kissimmee River, hurricanes, marine pollution, auto emissions, federal water quality laws, Cross-Florida Barge Canal, and beach restoration.

ENFO is distributed to elected and appointed officials, educators, researchers, businessmen, news media, civic leaders and others who do not usually have access to evaluations of such a diversity of technical subjects.

Information on file at the Center is also available to persons who visit, write or call for assistance. In most situations this can be provided at no cost, or for cost of reproducing and postage.

Reports, newsletters and other information provided by the Environmental Information Center have been widely used in Florida and beyond. In Florida, they have been referred to as a basis for Cabinet and agency actions, reprinted in major newspapers, distributed by agencies and citizen groups and distributed at conferences.

General operations of the Center have been supported by the Ford Foundation, many smaller foundations, businesses and individuals. Special projects have been funded in part or entirely by agencies or societies for whom the projects were undertaken. Donations are also sought specifically for costs of publishing and distributing ENFO newsletters. Pemanent Center staff consist of the director, research consultant and editor, and secretary. Other specialists are added for particular projects, and a great number of specialists volunteer their assistance by providing information, reviewing Center reports or carrying out segments of projects. Major activities at this time include preparations for a series of workshops on planning for a reduced rate of growth, and researching, writing and publishing ENFO newsletters.

History:
Florida Conservation Foundation was organized as a result of a series of meetings of leading Florida conservationists that started in 1968, with agreement that the State needed an objective research and information program dealing with the many complicated environmental issues of importance to the State. It was felt that this program would assist conservation groups, governmental agencies, officials, the media, businesses and the public in general. The Conservation Foundation of Washington, D.C., agreed to seek support for this effort. FCF was incorporated in 1968, and initial funding was promised by the Ford Foundation. In January, 1971, the Environmental Information Center was started to achieve the purposes and goals of FCF.

Problems:
Inflation and accusations that conservationists have contributed to shortages have affected many if not all conservation efforts, although recent polls show that the public in general overwhelmingly feels that businesses and government are to blame for those problems. By revising programs, seeking new sources of funds, taking advantage of changing conditions, finding new sources of expert assistance, and by broadening our contacts we feel we will successfully overcome current problems.

Future Plans:
Future plans include improved publicity for our activities, and formulating programs that cope with energy and other shortages, and economic trends. The Office of Education grant for workshops on planning for a changing world, which will be aimed at financial and government officials, should be a major step in this direction. The Center is seeking support for a program to describe to homeowners how they may construct solar water heaters using readily available materials, which is very promising. Details can be supplied upon request, as these programs develop.

-W. Partington

PROGRAM TITLE: ENVIRONMENTAL EDUCATION STATE PLAN

DIRECTOR: Bill Morehead, Department of Natural Resources,
Trinity Washington Building, 270 Washington Street, S.W.,
Atlanta, Georgia 30334.

A draft action plan for Environmental Education was completed in October 1974. The plan, prepared with the cooperation of ten state agencies will be reviewed by the leadership of the ten agencies and edited to its final form for presentation to the 1975 Georgia Legislative session beginning in January 1975.

Impetus for the plan came from a 1974 State law requiring that ten specified agencies of State Government, including Education, University System, Natural Resources, Agriculture, Forestry, Planning and Budget, Transportation, Human Resources, Soil and Water Conservation Committee and Community Development, cooperatively develop a recommended State Environmental Education Plan by such time as to make it available to the 1975 General Assembly.

In addition to the agency input to the draft, six public hearings were held in various regions of the State to elicit citizen input to the proposed plan.

The draft action plan was reviewed at a seventh public hearing in November and offered for approval to the participating agencies' commissioners in early December.

The Georgia Environmental Education Action plan in the form to be presented to the 1975 Georgia Legislature was to be available to persons wishing to review it by mid-December. It can be obtained from the project director.

-B. Morehead

PROGRAM TITLE: GEORGIA ENVIRONMENTAL EDUCATION INSTITUTES

DIRECTOR: Philip F-C Greear, Box 2, Shorter College, Rome, Georgia 30161. (404)232-2463

Objectives:
To prepare teachers K-12 to incorporate environmental education in daily class activities.

History:
Project began in 1966 and was sponsored by the ad hoc Georgia Environmental Education Council financed by subscription and contribution from private sources. Has continued annually since 1966.

Present activities:
1. Operate three institutes annually: Shorter College, Valdosta State College, and West Georgia College.
2. Conduct an annual one week short session at Camp Timberidge, Atlanta, for Metro area teachers in cooperation with Garden Club of Georgia.

Problems:
1. Public apathy
2. Fund raising

We plan to continue as long as the need exists.

-P. Greear

PROGRAM TITLE: SAVANNAH SCIENCE MUSEUM

DIRECTOR: Charles E. Milmine, 4405 Paulsen Street, Savannah, Georgia 31405. (912)355-6705

I. Objectives

Through its exhibits, education programs, research, and Resource Center for Environmental Education, the Savannah Science Museum aims to provide both young people and adults with a greater sensitivity to their environment, and to instill in them a greater appreciation of the need to preserve the quality of both the natural and man-made environment.

- A. Exhibits: all ages, especially families.
- B. Education Programs
  - 1. Pre-school Environmental Discovery Program: pre-school and kindergarten children.
  - 2. Environmental Encounters: grades 1-16.
  - 3. Adult Courses: teens, professional and lay adults.
- C. Research: teens and adults.
- D. Resource Center for EE: teachers, youth leaders, recreation workers.

II. Program History
- A. Originators: Charles Milmine, Director of Science Museum; Jean Milmine, Director of Resource Center for EE
- B. Inception: The Savannah Science Museum is a twenty year old private museum. The Milmines assumed leadership in April 1973, with the intention of developing the museum into a community environmental education learning center. The Resource Center for Environmental Education was established in September 1974.

III. Present Activities
- A. Exhibits

  "Involvement" exhibits on ecological/environmental subjects largely volunteer created..Temporary exhibit (winter 1974) on the Energy Crisis researches, designed, and created from recycled materials by thirty volunteers.
- B. Education Programs

  1. Pre-school Environmental Discovery Program - a year long discovery curriculum consists of activity guides, consummable materials, teacher workshops, and three field experiences (two in natural areas, one in school neighborhood) led by museum staff and volunteers. About 40 kindergartens, 700 children enrolled 1974-75.

2. Environmental Encounters - Teaching staff is available to lead field explorations at a variety of sites around Savannah. Themes are suggested in "Environmental Education Services to Schools" brochure, but teachers are encouraged to identify their own objectives for the encounter in keeping with their own curricula. Trips focus on such areas as:
    a. ecological concepts: taught in forest and field, salt marsh beach, mud flat, southern river swamp, downtown.
    b. man-made environment topics: architecture, planning and design, clues to the past, man's use/abuse of resources: taught in urban areas, historic districts, around schools.
    c. environmental problems/solutions: sewage treatment and industrial water supply facilities, forest pest problems, dunes protection/beach erosion, pollution abatement programs at local industries.

About 2500 students enrolled 1974-75.

3. Adult courses - Basic Ecology for Adults (taught in cooperation with the Georgia Conservancy): eight session course on basic concepts as they apply to natural and man-made communities around Savannah. Each session conducted at a different field site. 50 adults enrolled.

C. Research

The research element is the smallest at the museum; whatever is undertaken is designed to involve volunteer teens and adults. One ongoing project with environmental education significance is the Loggerhead Turtle Study, conducted in cooperation with the Bureau of Sport Fisheries and Wildlife, U.S. Department of the Interior: an eight week research project conducted by museum staff and volunteer teens on the nesting behavior of this endangered sea turtle. Conducted on Wassaw Island National Wildlife Refuge. 50 participated 1974.

D. Resource Center for Environmental Education

Established September 1974 to strengthen environmental education efforts in the community.

1974 activities:	Community-wide need assessment in EE Host of Tri-State (North Carolina, South Carolina and Georgia) Conference on Coastal Environmental Education, in cooperation with the State Department of Natural Resources.
1975 activities:	Creation of EE library and materials: EE newsletter; EE workshops. Creation of Recycle: a gathering place for industrial scraps mistakes, and overruns, all safe and useful for teaching.

IV. Problems encountered

A. Lack of staff: sufficiently large to cope with requests for services. Solution attempted: raising of funds in community to enlarge staff and offerings.

B. Teacher dependency: Even after in-service experiences, teachers tend to rely on museum staff for help in leading field encounters, classroom discussions, and in designing follow-up learning activites. Solution attempted: Resource Center for environmental education, expanded workshop offerings, and encouragement!

C. Difficulties with field trip arrangements: Red tape involved in planning a trip causes many teachers to shy away from the idea altogether. Problems with time scheduling, especially with secondary level students. Solutions attempted: active search for nearby sites, encouragement to teachers, parents, school board, that field experiences are worth the effort, and a good bit of resignation.

V. Plans for the future

A. Exhibits

Large bicentennial exhibit with environmental focus: The Resources and Technology Which Built Savannah.

B. Education

1. museum intern program
2. expanded adult education offerings
3. semi-programmed environmental encounter guides for grades 1-12 developed with local schools and other EE agencies in area

C. Research

Expanded loggerhead turtle research

D. Resource Center for Environmental Education

1. EE equipment loan center and distribution system
2. Inventory of EE Learning Resources in region
3. Development of Savannah-based curriculum materials

VI. Publications

A. In reference to program:

1. "Museum Metamorphosis" Grass Roots, EE Report, May 1974
2. "Community Resource Centers", by Jean Milmine, in What Makes Education Environmental?, ed. Don Albrecht and Noel McInnis, Environmental Educators, Inc., Washington, 1975.

B. Published by program:

1. program brochures: free on request
    a. EXPLORE!
    b. Pre-school Environmental Discovery Program
    c. Environmental Education Services to Schools (published in cooperation with the Marine Extension Center at Skidaway Island).
2. Curriculum materials: available at minimal cost
    a. Pre-school Environmental Discovery Program curriculum:
        (1). Kit 1: Exploring With Our Five Senses
        (2). Kit 2: What's Alive?
        (3). Kit 3: Where are the Animals?
    b. Volunteer Handbook
    c. Basic Ecology for Adults: summary of activities

3. Newsletters: free on request
   a. News from the Science Museum
   b. Resource Center for EE newsletter

VII. Evaluation
Pre-school teachers participating in program write evaluations on each part of curriculum, and upon field experiences.

Teachers participating with environmental encounters write evaluations on each environmental encounter..because each field experience is tailor-made to the needs of class and teacher, there is not yet any standard cognitive evaluation of encounters.

In-service workshop and adult course participants evaluate each experience at the end of its. No follow-up done at this time.

-C. E. Milmine

PROGRAM TITLE: OUTDOOR EDUCATION PROGRAM

DIRECTOR: William S. Suzuki, YMCA Camp Erdman, 401 Atkinson Drive, Honolulu, Hawaii 96814. (808)941-3344 Ext. 135

Using Dr. William Hammerman's philosophy and adding our thoughts, our program objective is for "the effective utilization of the out-of-doors to facilitate and enrich learning related to the school curriculum and life".

The program began with about 16 elementary schools six years ago totaling 2,300 students. The program gradually took hold and we ended with 63 elementary schools totaling 6,388 participants for the 1973-74 school year. We are expecting a total enrollment of 10,000 plus participants with a total of 90 schools participating during the 1974-75 school year.

Our program is so structured that every participating school plans their program with our imput and program specialists help to implement the planned activities. The basic objectives with every participating school is that, in order to really understand and appreciate any environmental education program, the teacher and student must have a good inter-personal relationship to make things interesting and exciting for them.

The most pressing problem is to fit or schedule every school that wishes to be involved in this program.

We have completed the dining hall for over 350 people, theater-in-the-round, conference rooms, 15 new cabins and wash houses. We hope to develop larger and better program areas. We will begin to develop camp sites for different phases of environmental education on the neighboring islands.

-W. S. Suzuki

PROGRAM TITLE: WAIKIKI AQUARIUM MARINE EDUCATION PROGRAM

DIRECTOR: Charles DeLuca, 2777 Kalakaua Avenue, Honolulu, Hawaii 96815. (808)923-9741

Program Objectives:
Geographically, Hawaii is a marine oriented state but the dissemination of knowledge about the environment which surrounds it has fallen short of expectation. Because the Aquarium is part of the University of Hawaii, it has gone beyond the scope of Public Aquarium to include a program of Marine Education. This endeavor encompasses three areas:
1. For Children: Aimed at some 300 public and private schools in the City of Honolulu alone, the program embraces: a) providing teachers with appropriate materials for presentation to their classes prior to visiting the Aquarium; b) tying this material in with Aquarium excursions; and c) recommending post-visit materials or activity of a marine nature.
2. For Adults: Offering evening classes (by subscription) and lecture series' (free). Also available free are nature and environmental pamphlets.
3. For International Dispersal: Publishing the "Directory of the Public Aquaria of the World" and "Directory of Aquarium Specialists" for dissemination among Aquariums, Libraries, and Scientific Institutions and facilities.

History:
Since 1954, the Waikiki Aquarium has presented slide lectures to school groups and nature pamphlets to teachers. More recently, an Education Section has been organized and a subsequent Docent Program, which allows community adults to learn about the marine environment and, in turn, help educate visiting school or adult groups.

Already mentioned, are marine classes on varied subjects (invertebrates, behavior, etc.), and the free lecture series' (*The Law of the Sea Conference*, *Whales in Danger*, *Sharks*, etc.).

Problems: Primarily financial.

Expansion Plans:
1. For Children and Adults: To move beyond the boundaries of Honolulu and embrace all the islands which make up the state, possible by rotating exhibits and teams of visiting lecturers.
2. For International Dispersal: Publication of a quarterly journal devoted to Pacific Marine Sciences.

Publications:
1. For Children: Guidesheets and lesson plans. In process, a *Docent Guidebook*.
2. For Adults: Pamphlets: *Coral*, *Mollusks*, *The Whale*, *Magnificant Giant in Danger*, etc.

3. International Dispersal: "Directory of the Public Aquaria of the World" and "Directory of Aquarium Specialists".

-C. DeLuca
Curator/Acting Director

ERIC DOCUMENTS:
1. Directory of the Public Aquaria of the World. Fifth Edition 1974-1975. SE 018 546
2. Directory of Aquarium Specialists. 1974-1975. SE 018 547

PROGRAM TITLE: ENVIRONMENTAL EDUCATION ASSOCIATION OF HAWAII, INC.

DIRECTOR: Sister Edna L. Demanche, Hawaii Nature Study Program, University Laboratory School, 1776 University Avenue, Honolulu, Hawaii 96822.

The Environmental Education Association of Hawaii runs workshops in environmental education for the adult public. We do not put out any kind of journal, newsletter, nor have printed lesson plans for distribution. Handouts at the workshops are run off in quantities tailored to each workshop. Otherwise we use materials in print by the U.S. Forest Service.

-Sister Edna L. Demanche

PROGRAM TITLE: LAND USE PLANNING IN SOUTHWEST IDAHO

DIRECTOR: Donna Parsons, The College of Idaho, Regional Studies Center, Caldwell, Idaho 83605. (208)459-5011 Ext. 214

The general objective is to prevent further degradation of the environment through unwise land use.

The specific objectives of this project are to help residents of rural southwest Idaho:
1. Identify land use problems.
2. Become familiar with the process of land use planning.
3. Understand the legislation relating to land use planning.
4. Be able to apply techniques to develop solutions for local problems.

A Land Use Planning workbook and a Teacher's Guide for land use planning decisions in Idaho will be prepared and used in workshops.

The RSC has had a Title I Higher Education Act project dealing with land use planning for the past three years. This is an outgrowth of that.

-D. Parsons

ERIC DOCUMENT:
A Guide to Environmental Study Areas of the Snake River Region. Final Report. ED 075 263

PROGRAM TITLE: MS IN ENVIRONMENTAL STUDIES

COORDINATOR: Joel Margalit, Environmental Science Program, Southern Illinois University at Edwardsville, School of Science and Technology, Edwardsville, Illinois 62025

The Master of Science in Environmental Studies degree program offers the student the option of taking a concentration in Environmental Studies with an outside concentration in other fields or of taking a dual concentration in Environmental Studies and in Urban Studies. The concentration areas are designed to train competent problem solvers with an interdisciplinary (generalist) approach to environmental problems. This program is interdisciplinary in that the skills and competencies of a number of academic disciplines are brought together and focused on practical problems which confront contemporary society.

The Environmental Studies concentration is designed for individuals who are employed or are contemplating employment in occupations dealing with, or having a general interest in, environmental problems. The Environmental Studies program will emphasize interdisciplinary problem solving techniques using the skills and knowledge of a wide range of disciplines from the social and natural sciences, humanities, arts, and professional areas. The concentration consists of a required core curriculum of 18 quarter hours, academic minor of 15 to 24 hours and a final exercise in applied problem solving which includes a formal research report (5-9 hours) and which may include a student internship.

Students seeking admission to the Master of Science in Environmental Studies program must satisfy the admission requirements of the Graduate School and be approved by the Environmental Studies Committee. Criteria for admission will include an assessment of the potential contribution which the student may be expected to make to the solution of environmental problems, as well as his demonstrated academic background. If deficiences exist, a program of study designed to eliminate the deficiencies will be outlined by the appropriate faculty committee, and the student will be expected to eliminate his deficiencies in addition to satisfying the normal requirements for the degree.

The program is not designed to train environmental technicians but "generalists" who can effectively integrate materials from different disciplines. The specific professional position an individual graduate will be able to fill will depend upon his undergraduate background and previous experience. A primary teaching technique will include the preparation of various types of information appropriate for environmental impact statements and the integration of these materials. It is anticipated that many students will spend three months or more in internship programs obtaining experience in the actual practice of dealing with environmental problems.

-J. Margalit

PROGRAM TITLE: ASSOCIATION FOR ENVIRONMENTAL INFORMATION

DIRECTOR: Frank Corrado, 931 Ridge Court, Evanston, Illinois 60202.

A small group of State and Federal public affairs officials working in the area of environmental protection have founded The Association for Environmental Information, a national non-profit organization recently incorporated in the State of Illinois.

The purpose of the organization, according to Washington EPA Public Affairs administrator James Bowyer, is to provide increased communication and interchange among persons involved in environmental communications. Membership in the Association will be limited to those in public affairs, public information or other professions concerned with environmental communication.

"The direction of the Association can go a number of different ways," says Bowyer, "but some of the areas it might include are developing professional standards, offering short training programs, educating the public, testifying before Congress and fostering innovative programs in environmental education and communication."

Development of specific goals, by-laws and programs will be considered at the Association's first organizational meeting scheduled for late spring, 1975.

-From: Environmental Education Report
December 1974

PROGRAM TITLE: OPERATION LAKELAB

DIRECTOR: Wilson B. Muse, 1305 Hiawatha Trail, McHenry, Illinois 60050. (815)385-3483

The objective of the program is twofold. Its initial function will be to map the water chemistry and biota of the upper and major portion of the Fox River basin in northern Illinois, in order to determine extent of pollution and deterioration of the ecosystem. The lateral function of the project will be to synthesize and translate this information into an educational program for citizen groups and students at all levels in the area. The program centers on a floating laboratory, i.e., a 20 foot pontoon craft appropriately equipped to take and analyze water samples. It will operate in an area of over 8000 acres of a lakes-river system beginning at the Illinois-Wisconsin border and extending through one and one-half counties to the first dam in the system. The project hopes to involve students at the college level from Chicago metropolitan area colleges and universities as study teams.

The history of the project is not involved. It was engineered by the project director and several limnologists to meet an evident need locally and stimulated by the availability of a federal grant. The inception occurred in April of 1974. It is hoped that the project will be viable in the spring of 1975, the pilot run should occur in late autumn 1974.

Present activities include education on an informal and more or less one-to-one basis of legislators at the county, state and federal level, of the real and aesthetic value of the basin area and also a campaign to create awareness on the part of local residents and commercial interests concerning the nature of the problems and the consequences of continued inactivity.

The major problem encountered has been the delay in receipt of funding from HEW.

Plans for the future are at this point rather nebulous, pending an evaluation of the program's success in the operating phase. An attempt will be made to assess participation, and cost-benefit ratio and degree of integration into the primary and secondary formal education programs now in existance. Optimism is at a high level concerning justification of the program.

There are no plans at this time for publication, however, project logs and experience may provide basis for such in the future.

-W. B. Muse

PROGRAM TITLE: ENVIRONMENTAL EDUCATION LEADERSHIP DEVELOPMENT PROJECT

DIRECTOR: James Joseph Gallagher, Assistant Dean, College of Environmental and Applied Sciences, Governors State University, Park Forest South, Illinois 60466. (312)534-5000

The project is designed to develop leadership personnel for environmental education and thereby foster infusion of environmental education into the total school curriculum. Thirty secondary school teachers, one science teacher and one social studies teacher from each of fifteen school districts in the greater Chicago area, will be selected as participants. During the training phase of the project, participants will engage in ten day-long in-service sessions which will be designed to (1) improve knowledge of the causes, consequences and ways of solving environmental problems, (2) increase knowledge of and skill in utilizing materials and strategies for environmental education, and (3) enhance knowledge and skills in leadership roles, including that of change agentry. In addition, project staff, through an "environmental curriculum circuit rider", will provide supervision, on-the-job assistance, consultant help and feedback to the participants in their local school districts. The "circuit rider" will aid participants in applying knowledge and skills learned during in-service sessions by working with them in resolving problems of planning, organizing, implementing and evaluating an environmental education program in each of the cooperating districts. The project is planned for a one year model development and testing period beginning in July 1974. At the end of that time a model program for developing environmental education leadership personnel will be formulated.

-J. J. Gallagher

PROGRAM TITLE: WINNEBAGO COUNTY CONSERVATION EDUCATION COUNCIL - ENVIRONMENTAL EDUCATION PROJECT

DIRECTOR: Robert E. Greene, c/o Haskell School, 803 Woodlawn Avenue, Rockford, Illinois 61103. (815)968-8394

Since we received only a mini-grant under P.L. 91-516, there never was any full time staff employee for this grant. The Winnebago County Soil and Water Conservation District as the recipient of the grant delegated the administration of the grant to the Winnebago County Conservation Education Council. As the author of the original grant application and member of the Winnebago County Conservation Education Council Board of Directors, I also served as project director.

Mrs. Marion Lawson, Secretary for the Winnebago County Soil and Water Conservation District Board, served as our council secretary and bookkeeper.

The original mini-grant of $9,921.00 was extended for a second and third year of funding with $5,640.00 additional funds granted by the government for a three year grant total of $15,561.00.

In addition to the many activities listed in the 1971-72 project report, we have since that time, published in 1973 a *Teacher's Guide to the Rockford Park District Children's Farm*, and finally this year pushed to completion the development of a series of twelve color slide sets on Environmental Education, directly related ot the Rockford Metropolitan area.

These are being reproduced as color filmstrips and distributed with accompanying cassette tape sound narrations and teacher guide sheets to all the schools, public and private, in Winnebago County.

A total of 1140 filmstrips are being distributed to schools this fall. When the average cost of sight and sound filmstrips to schools produced by commercial firms is between $15 and $20 each, we feel we are providing nearly $20,000 worth of environmental education filmstrips to our schools. Our final financial statement shows a total project expenditure for film and instructional materials of only $6,219.04. Probably even more important is the fact that these films are of scenes and issues relevant to the local community.

We of course do not have copies of these filmstrips available for nationwide distribution. However, we would try to honor requests from institutions of higher education for copies of our slide sets and accompanying narratives, at our local production cost plus postage and handling fees. We would need at least one month's time from date of request to fill such orders.

We also are maintaining slide sets in carousel trays with audio tapes for loan and use by local civic organizations, clubs, church groups, etc. through our Soil and Water Conservation District office.

Evaluation of these slide sets has occurred in several ways. First, the producers usually piloted the set with students in school, making changes and adaptations as necessary. Second, a film festival type showing of many of these sets occurred May 17, 1973 at a meeting attended by 27 members of the Winnebago County Conservation Education Council gathered for that purpose.

The third type of evaluation was the use of segments of these slide sets in a public advocacy role attempting to influence public policy of elected boards of local units of government.

Two examples are noteworthy: The first issue was the need for a park playground for an inner city (Rochford, Illinois) elementary school that served a high population density low income neighborhood. The Rockford-Winnebago County, Illinois Planning Commission had in 1969 identified a high priority need for a playground for the Haskell Elementary School. The school, begun in 1959 and added to in 1963 and 1966, housed over 500 students, 2/3 of them members of minority groups. The Rockford Board of Education acknowledged the need but lacked the funds. The Rockford Park District had unused bonding power and had signed a memorandum of agreement with the local urban renewal office in an application for federal open space legacy of parks funds in 1971.

However, members of the local park district board refused to appropriate matching funds to obtain the federal grant and instead developed a park district capital improvements program that utilized park district funds in more "politically potent" neighborhoods.

In February 1973 this writer raised the issue at a number of public meetings during an election campaign for park district commissioners, and showed segments of the slide series, "Urban Environments" showing children playing in the streets around abandoned houses, etc.

The result was a committment by all the candidates for park district commissioner to the school playground. Subsequently in 1973 the playground was approved by the park district, school and city officials. H.U.D. funds have been obtained and matched locally, and construction of the playground is scheduled for spring of 1975.

The other case of use of a film in public advocacy occurred in September 1974. Our Winnebago County Forest Preserve Commission was holding a public hearing on its budget. Local conservation groups such as the Audubon society, and Nature club appeared to ask that the Forest Preserve District's capital land acquisition budget be increased from one million to five million dollars. The League of Women Voters also supported this step up in land acquisition. A series of slides from "Our Native Woodlands" series were shown that showed the rapid destruction of local forests through real estate development and bulldozer clearing to create farm land.

The Forest Preserve Committee and the full Winnebago County Board both approved the higher land acquisition budget. We can not of course postulate a direct cause-effect relationship, but comments of individual board members would indicate that it helped.

As to future activities of our organization, I expect that this year they will be centered around dissemination and further evaluation of our filmstrip series. We also hope to see further site development of our various school year outdoor environmental laboratories.

As to problems confronted, the greatest of these is simply time! Time to communicate with other members of our Conservation Education Council, and getting people to give time to serve on various committees. Practically every council member was employed full time at some other job, in education, extension work, soil conservation, parks and recreation, or a similar occupation.

The other problem was the loss of enthusiasm that inevitably set in after the peak years of interest in the environmental movement 1970 and 1971.

Our Winnebago County Conservation Education Council Board of Directors continues to meet monthly, but we have been hard pressed to publish a newsletter regularly.

-R. Greene

PROGRAM TITLE: ENVIRONMENTAL EDUCATION PROGRAM AT YOUTH CONSERVATION CORPS CAMP - EAGLE CREEK PARK

PROGRAM AGENT: William Headley, Jr., 5901 DeLong Road, Indianapolis, Indiana 46254. (317)293-4827

Objectives:
1. To develop in participants an understanding, awareness and appreciation of their natural environment.
2. To develop work-related skills and values.
3. To develop social skills and understanding in a unique living situation.
4. To provide summer employment for youth ages 15, 16, 17, and 18 representing a cross-section of Indiana students, recommended by their high school counselors.

Methods of achieving objectives:
1. Enrollees live in a primitive tent camp for four weeks with two weekend field trips, one in an urban area, another in a rural area. Resource persons will implement canoe instruction, nature hikes, forestry, current conservation issues, group field investigations, "Acclimatization", field trips in town, etc.
2. On-the-job training during work hours in safe use of tools and equipment, utilizing conservation techniques and desireable work habits. Work projects include trail rehabilitation, campground and habitat improvement, and park aid.
3. Co-educational camp in a wooded area with groups living in tents. Participants from diverse backgrounds cooperate, simply to live in a subsistence-maintainance lifestyle. Exposure to persons who work directly with environmentally ethical attitude formation.
4. Recruitment is through high school counselors who are asked to recommend interested students who would benefit from camp experience, and also represent a cross-section of students. Fifty percent enrollees will be female. Each camper will earn $240.00 for the four-week session.

History of program:
Y.C.C. is a three-year-old federal program. Eagle Creek Park was among the first local level programs to be operated. 1975 will be the second year for the Y.C.C. Camp at Eagle Creek Park.

Y.C.C. is funded fifty percent federally, and operated through the Department of Agriculture and the Department of Interior.

Activities:
Environmental education activities are ever-present in the camp and on the work site. A main tool will be the Y.C.C. "Handbook for Environmental Awareness-People and Natural Resources" with self-directed learning. Presently we are securing high school credit for our program through an experimental course with consulting teachers.

Problems encountered:
1. Counselors or work leaders lack training in environmentally-related activities and issues. We are implementing a pre-camp staff training session.
2. Staff overburdened with various responsibilities, therefore lacking time to prepare E.E. A coordinator has been hired to develop the program, bringing in help and aligning the situation several months previous to camp.

Future plans:
Future plans include on-the-work-site learning and investigations. Team investigations of a community environmental problem, camp craft skill instruction, canoe instruction, gardening, canoe or hiking trips, outlet sessions, and group dynamics as included.

-Karen Bower
Y.C.C. Environmental Education Coordinator

PROGRAM TITLE: ALLIANCE FOR ENVIRONMENTAL EDUCATION

EXECUTIVE DIRECTOR: Jack Snell, 635 South Main Street, South Bend, Indiana 46623.

Four immediate priority areas identified by the Board of Directors and the new Executive Director upon his appointment in August 1974 were:
1. To develop a program so the Alliance can become a financially viable organization. The first step in this process will be to assess the needs of the member organizations and the resources available from each.
2. To establish an effective communications link, initially in the form of a newsletter, later by a series of meetings and workshops.
3. To investigate interest and willingness to support an Earth Renewal Week recommended for April 13-19, 1975.

4. To organize a meeting November 1-2 in Washington. Delegates from member organizations were invited to present position papers.

Snell explains that the resources available to the Alliance through its members are extensive. "It's a matter of managing those resources to avoid duplication", he emphasizes. "Hopefully, the Allicance will operate like an eco-system, with everything hooked together and complementary."

-From: Environmental Education Report
September 1974

PROGRAM TITLE: DEVELOPMENT OF A PROCESS CURRICULUM FOR FAMILY EDUCATION

DIRECTOR: Dwight R. Platt, Bethel College, North Newton, Kansas 67117. (316)283-2500

Objectives: This project was planned as an attempt in the education of communities in southcentral Kansas with regard to environmental values. The project was planned to involve whole families - a family workshop. Five-session series of family learning experiences on two different topics, Ecological Values or What is a Prairie Worth, and Lifestyles That Have a Future, were developed and tested in five communities. The series were planned to affect the following changes in participants:
1. A better understanding of environmental systems and the ways in which individual and community decisions affect them.
2. An understanding of the relations between some of our personal, family, and community values and goals and environmental problems; and a change in participants toward values more consistent with a good environment.
3. A greater commonality of understanding and conviction within the participating families with regard to the type of environmental values they wish to preserve. This may promote more consideration of environmental values in making family decisions.
4. More concern to act on environmental issues. This will provide a nucleus of individuals who will cooperate with future activities of the southcentral Kansas Environmental Education Center (SKEEC).
5. A better understanding, on the part of the staff of SKEEC, of the needs and desires of the people of southcentral Kansas in environmental education.

Eight to twenty-seven families participated in each workshop. The workshops consisted of five sessions spaced at weekly intervals. Activities of the workshop included:
1. Total group experiences, such as ecology films, slides, tapes, demonstrations, question-answer sessions, or input.
2. Family assignments - to be done at home between sessions.

3. Age group sessions - the four age groups were lower elementary, upper elementary and junior high, high school, and adults.
4. Intergenerational discussion.
5. Field trips.

History: In the spring of 1970, Bethel College sent out an invitation to all of the Unified School Districts in southcentral Kansas and a few other selected organizations to attend a meeting to discuss the possible formation of an environmental education center. At the meeting held on April 3, 1970, representatives of 21 schools and organizations attended and expressed needs that they felt such a center could help fill. Another meeting was held in the fall of 1970 and the Southcentral Kanses Environmental Education Center was organized and a Steering Committee elected. Steven G. Schmidt was elected Chairman of the Center. During the ensuing year with the help of various Steering Committee members, students at Bethel College, and other interested community members, a proposal was written and submitted to the Office of Environmental Education, a resource and reference library was organized, some speakers were sent out to various organizations, and some field trips were organized for public school classes on the Sand Prairie Natural History Reservation. All support came in the form of donated facilities and gifts from affiliated organizations and interested individuals and in the voluntary labor of many individuals.

In the fall of 1971, the Steering Committee elected Steven G. Schmidt and Dwight R. Platt as Co-chairmen of the Center. During the first semester of this year, Center personnel have stimulated and helped in the organization of a recycling and composting project in Hesston and a recycling project in North Newton. Interested local individuals or organizations donated facilities for these projects.

The Steering Committee of SKEEC authorized a planning committee composed of Bethel College staff and community people to plan for a community environmental education project and to apply for funding. This committee wrote a project proposal that was submitted to the Office of Environmental Education, Department of Health, Education and Welfare. This project was funded from July 1972 to November 1973.

Curricula for the two workshops topics were written by committees composed of Bethel College students and community people and chaired by two Bethel College students. Workshops were then held in five communities. Evaluation consisted of feed-back questionnaires before and after the workshop and during the workshop as well as an in-depth evaluation a few months after the workshop by a Bethel College student.

Activities: The final report on this project and the curricula have been distributed to many organizations that requested it. In the southcentral Kansas area, a number of communities had indicated an interest in sponsoring environmental family workshops but none have come forward to sponsor them since the project was terminated.

Problems: The main problem encountered in the workshop program was that it was not designed for the type of persons who participated in the workshops. The decision was made by the writers of the original proposal, and reiterated by the Steering Committee in choosing topics, that the workshops were to focus on values as they affect environmental decisions and were to be designed for a diversity of participants, especially those who were apathetic, uninformed or negative with regard to environmental concerns. We stressed this need for diversity and for a cross-section of the community in our correspondence with local sponsoring organizations. However neither we at SKEEC nor the local sponsoring groups were realistic about the difficulty of getting such a group of participants nor in devising methods for attracting them. Therefore, the participants in the workshop were predominantly persons who had made many of the value commitments that were being presented in the workshop.

Future Plans: We hope to continue some community education work with a curriculum being written this year that will have some components usable by community groups. This curriculum will explore certain organizational concepts in a prairie ecosystem and explore the multidisciplinary ramifications of some of these concepts.

Also we are continuing community education through mini-courses on natural history and environmental topics offered for community people.

-D. R. Platt

PROGRAM TITLE: UNION COLLEGE ENVIRONMENTAL EDUCATION CENTER IN CUMBERLAND GAP NATIONAL HISTORICAL PARK

DIRECTOR: L. Scott Ranger, Environmental Center, Route 2,
Middlesboro, Kentucky 40965. (606)248-3613

Objectives:
To promote the development of an environmental ethic in all levels of participation, school grades K-12, college and citizenry, based upon well-founded environmental concepts learned through the stimulating dissemination of accurate and up-to-date information on relevant environmental concerns and topics.

History:
The Center was established in the summer of 1970 utilizing an abandoned Job Corps site in Cumberland Gap National Historical

Park under a special use permit from the National Park Service. The initial use was to build up a program of resident education based upon NEED ideas of this base which provided an operating income. As the program has developed the additional age levels are being added. Presently we are offering an education program for about half of our goal.

Activities:
Primary education, grades K-3. Day-use programming utilizing the Center and off-site locations for environmental awareness activities.
1. Primary Education - grades 4-9: Five-day resident environmental education programs based upon NEED (National Environmental Education Development) concept which utilized concepts and relationships for the promotion of environmental awareness, rather than scientific identification. The Strands model and "Adventure in Environment" curriculum materials were used as well as many curriculum materials developed by school districts, Title III, ESEA, and the various U.S. Government agencies.
2. High School - grades 9-12: Five-day resident programs of a more technical nature than elementary NEED, and the STEP (Students Toward Environmental Participation) program of the National Park Service, where after an initial awareness course, high school students are encouraged to become actively involved in some aspect of environmental studies---from being a volunteer to work with elementary students, to doing environmental research projects and to working with local industry on environmental problems.
3. College-level: Union College operates a successful sociological program termed the Appalachian Semester, a 16 hour indepth study into the unique aspects of Appalachia. The college is developing an environmental program to accompany this successful activity to round out the total environment of Appalachia, realizing that the natural resources and the natural environment function as a major force in creating the unique Appalachian culture. The program will begin in the 1975-76 academic year.
4. Citizen programs: Southeastern Kentucky has many problems which can be attacked through citizen awareness, such as abandoned vehicles and garbage collection. This awareness comes through various seminars and programs held throughout the county and the Center.

Problems:
The Center has operated since inception with an unbalanced budget, loosing approximately $12,000 each year with the total operational budget of approximately $100,000. The main income has been the participation generated through the NEED Program. However, this is not adequate to entirely fund the operations, thus the additional funds have come from the general fund of Union College, a small and financially troubled independent college. A U.S. Office of Education grant initially provided funds, and continuing grants help the Environmental Semester. However, the only real hope for the Center paying for itself

is through increased revenues from the NEED Program, which can only come through increased participation in the program.

1. Participation: It is a continuing problem to find schools willing to spend a week away from school to study environmental problems, especially during the late fall and winter months of the year, although the Center operates year around. Recruiting trips are made to attempt to increase participation, but meet with only limited success. Best approach is through word of mouth accounting by groups with experiences at the Center. Present participation level is approximately 2,500 full-week attendees paying the basic $26 fee. An increase of 1,000 would raise income to break-even point. An additional participation problem is the proximity of an environmental center located in Great Smoky Mountains National Park only 100 miles distant that draws on a similar area for participation, and the location is a greater drawing power for this Center.

2. Cooperative Status with the National Park Service: This has never been a major problem, in fact it has more often been a distinct advantage, but there are prices to pay. The facilities are owned by the U.S. Government and any changes must be cleared through the National Park Service. The program must be in keeping with the philosophy and goals of the National Park Service which prevents the Center from offering the facilities to such activities as a band and football camp which would greatly increase revenues. The Director of the Center operates much as a division chief in relations with the superintendent of the park. This limits some directions, but also allows the use of many National Park Service resources.

Future Plans:
The future is unclear. However, the college anticipates the continued use of the Center, especially if the NEED Program can be made to be more self-sustaining. It is the major Appalachian Environment Study Area which could offer the unique resources of the Center and its location in Appalachia for various studies. Beginning with college students, this could be carried to the end where the Center would be a research base for the entire southern Appalachian region for the various governmental agencies, schools, universities and industry concerned with Appalachia.

Publications:
The Center is not particularly inclined towards the publication of materials, as the environmental education curricula are growing steadily, and much is simply an insignificant variation on a theme. So most of our materials are easily revisable mimeographed information on the local area, borrowing heavily from the existing literature. We would like to become involved in the evaluation of environmental education research, but presently do not have the staff for such research.

L. Scott Ranger

PROGRAM TITLE: COMMUNITY NATURAL RESOURCES INVENTORY (NRI)
PROJECT TITLE I

DIRECTOR: Dr. Dean B. Bennett, Intermediate School, Yarmouth, Maine 04096. (207)846-3392

The Project is sponsored by the University of Maine at Portland-Gorham through its Center for Alternative and Experimental Programs. A secondary sponsor is the Maine Association of Conservation Commissions.

There is a need for citizens of Maine to participate in decisions affecting the quality of their community environments. State legislation, such as the Mandatory Shoreland Zoning and Subdivision Act, encourages local involvement in the planning process and depends upon the support of citizens for its effective implementation. Rapidly increasing numbers of conservation commissions in Maine are providing a means of citizen input into the decision-making process. A fundamental and vital task of these local advisory agencies is the preparation of community natural resources inventories (NRI's). These inventories provide basic data, relevant to environmental limitations and opportunities, when considering projects and developments affecting the land. Commissions in Maine have indicated both a need and a desire to receive direction and assistance in the preparation of NRI's. This project is significant in that it is: (1) designed to prepare and deliver NRI educational services to commissions in two rural counties of Maine with the aim of giving them the opportunity and assistance to produce local NRI's and develop inventory skills, and (2) designed to develop a course format and guidelines for future courses to be taught through the University of Maine System.

The objectives of the Project are:

1. The Project personnel will in conjunction with conservation commission members design, implement, evaluate, refine and disseminate to all commissions in Maine a natural resource inventory course for local citizens.
2. The Project personnel will conduct two natural resource inventory courses - one each in Washington and Piscataquis counties for NRI teams representing local Conservation Commissions. A first aim of the courses will be to develop in a nucleus of citizens, representing participating towns, skills and knowledge of the NRI process. A second aim will be to produce for each participating town an NRI manual and specific guidelines for its implementation.

The program content will focus on the natural resources inventory process of gathering and recording information and developing an understanding of topography, hydrology, surficial and bedrock geology, soils characteristics, vegetation, land use and open space, analysis of suitability for development and implementation steps. Methods utilized will involve NRI course curriculum design, course arrangements, teaching, evaluation, production of town inventory data manuals, consultation on implementation and course refinement, publication and dissemination. Materials will include mapping supplies, source maps and aerial photos. Faculty and personnel resources will include the Project Director, two inventory consultant/instructors, and other specialists. Each of these courses will consist of twelve formal classes of 2½ hours each, one follow-up town consultation and one public meeting per town. The twelve formal sessions will be held over a period of 25 weeks with one to four weeks between sessions.

-D. B. Bennett

PROGRAM TITLE: PROJECT PREPARE (PRESUMPSCOT RIVER EDUCATION PROGRAM FOR AWARENESS OF THE REGIONAL ENVIRONMENT)

DIRECTOR: Dr. Dean B. Bennett, Intermediate School, Yarmouth, Maine 04096. (207)846-9061

Project PREPARE is a federally funded Project focusing on the Presumpscot River Watershed. Funded under the Environmental Education Act, the Project is jointly sponsored by the University of Maine at Portland-Gorham and the Maine Association of Conservation Commissions (MACC).

The major objectives of the Presumpscot River Education Project are:
1. To help lay citizens and community leaders, particularly conservation commission and planning board members, develop an understanding of ecological relationships, environmental problems and their alternative solutions from a watershed perspective.
2. To develop a workable approach for citizen involvement in watershed education, planning and management.
3. To establish an educational program involving both secondary school and University students in watershed environmental studies.

Project PREPARE will attempt to achieve these objectives in a number of ways. We intend to involve physical science students from our target communities in, among other things, a water quality training and monitoring program. In cooperation with the Cleveland Institute for Environmental Education we have arranged a 2½ day student-teacher workshop at the Gorham campus of the University of Maine. Students and their teachers will learn how to construct their own sampling equipment and how to use it in water quality monitoring. Follow-up workshops will be held throughout the year.

We are hopeful that the baseline data compiled as a result of this Project will provide useful background and follow-up information to the Maine Department of Environmental Protection's summer 1973 survey of the Presumpscot River and also provide data necessary for 208 planning and related requirements under the 1972 Amendments to the Federal Water Pollution Control Act for the Greater Portland Council of Governments.

We further hope to involve social science classes in developing a curriculum dealing with the land-use considerations of watershed environmental problems.

Concurrent with the student and social activities we contemplate an economic and social assessment of the Presumpscot estuary. Our attempt here will be to gather data on the number of jobs lost due to pollution of the flats, the dollar value of lost resources and the impact on land values and recreational uses along the estuary. This data should be of value not only to the communities most directly affected, but should also be of help to the Department of Environmental Protection (DEP), the Council of Governments (COG), and other State Agencies.

Additionally, during the course of this Project, it is our intent to work with local conservation commissions. Since many conservation commissions are increasingly becoming involved in complex land-use decisions it seems that a basic orientation to the ecology of the Presumpscot Watershed may be in order. The specifics of these workshops have yet to be formulated, but their main thrust would be in giving commissions a working knowledge of those parameters and problems most often dealt with by municipalities.

There does not seem to be an urgent need for strict data collection, per se; rather, what is needed is an integration of data collection with the specific requirements of local, regional and state agencies for additional information. For example, much of the water quality monitoring and estuarine analysis contemplated would seem to coincide nicely with the needs of both the DEP and COG for additional information as required by the 1972 Federal Water Quality Amendments and as a follow-up to previous watershed work by the DEP. It should also be of benefit to local communities.

It seems essential that the monitoring work undertaken within the schools serve not only their needs in terms of environmental education and increased awareness but that they also serve the interests of the larger communities as well.

Certainly, if local agencies such as conservation commissions can develop the expertise to analyze and interpret water quality data, and local schools can develop the wherewithal to train students in the process to monitor certain of these parameters, a middle ground can be found for a sharing of information.

-D. B. Bennett

PROGRAM TITLE: THE ENERGY PROJECT

DIRECTOR: John M. Fowler, Visiting Professor of Physics, University of Maryland, College Park, Maryland 20742.

Elementary and secondary teachers in science and social studies are working on the development of instructional resource materials for teachers on energy-environment topics, a project arranged by National Science Teachers Association with funding from the Division of the U.S. Office of Environmental Education. James V. DeRose, supervisor of science at Marple-Newtown (Pennsylvania) schools is associate director of the project.

The materials will be multidisciplinary and for grades K-12. They will deal with the energy problem on all fronts: conservation, allocation, depletion, and with implications for environmental impact and economic needs. The products of the teachers' work will be a basic reference sourcebook for teachers, an activities guide, a self-evaluation guide, and a reference bibliography. Work on the project began in July 1974, and was scheduled to continue into the early fall, based at the NSTA headquarters building.

-NSTA News Bulletin
October 1974

ERIC DOCUMENT:
Energy and the Environment. ED 075 230

PROGRAM TITLE: CENTER FOR ENVIRONMENTAL AND ESTUARINE STUDIES

DIRECTOR: Dixie A. Pemberton, Chairperson, Natural Resources Institute, University of Maryland, College Park, Maryland 20742.

The newly emerging Center for Environmental and Estuarine Studies has just completed developing ten year plans that are the fruition of several years study, but most particularly, the work done last year. In 1974-75, seven of us from the Center met with each of the secretaries of the state agencies and their department heads. At these meetings we discussed their research and educational needs. Among these agencies were those of the Departments of Natural Resources, Economic and Community Development, Transportation, Energy, Agriculture, State Planning, Campuses of the University of Maryland, and the State Department of Education, and, of course, the Maryland Council for Higher Education. Much of the data from these meetings is reflected in our proposal for a comprehensive environmental center for the state of Maryland. This new Center, established last July, is called the Center for Environmental and Estuarine Studies of the University of Maryland. It will be absorbing the Natural Resources Institute, a well-known institute which has a solid track record in research and education over the past decade or so.

Now, our Department of Environmental Education already has several members who have been with the Natural Resources Institute for seven years or so. Mr. Tom Wisner, of the Chesapeake Biological Laboratory at Solomons, has just completed a packet of materials under a grant from the Office of Environmental Education that involves the Chesapeake Bay as a total system. He is currently working on a teachers manual which will accompany those materials. How and when such materials will be ready for distribution, depends on the selection of a publisher and so forth.

Mr. Kent Fuller, at the Appalachian Research Laboratory, has evolved several program areas which deal with citizen groups, public school support and teaching. Those interested in more details of Mr. Fuller's Environmental Forum, a monthly meeting of organizations deeply interested in environmental concerns in that area, or of his strategies to serve public schools by setting up outdoor nature trails or educational sites, should contact him at the Natural Resources Institute, Box 3266, National Highway, LaVale, Maryland 21504. Mr. Wisner can be contacted at the Chesapeake Biological Laboratory, Box 38, Solomons, Maryland 20688.

-D. A. Pemberton

ERIC DOCUMENT:
Progress Report - Maryland Environmental Education Survey. Part One: The Chesapeake Bay as an Intregral Part of the Environmental Education Program. SE 018 414

PROGRAM TITLE: POPULATION EDUCATION FOR COMMUNITY LEADERS

DIRECTOR: Julian M. Strauss, Harvard School of Public Health
665 Huntington Avenue, Boston, Massachusetts 02115.
(617)734-3300 Ext. 796

Assumptions and viewpoints underlying the proposal:
The principal features of this project, funded under P.L. 91-516, emerged during a series of conferences between two members of the Department of Population Sciences of the Harvard School of Public Health and two members of the Harvard Graduate School of Education. The experience of the four staff members with different aspects of community problems gave them the conviction that it is possible to learn how to provide communities with information that they will use effectively in dealing with the environmental issues which are particularly affected by population changes. Furthermore, experience indicated that an educational program would have greatest initial impact if directed to the leaders of existing community organizations.

Objectives of the undertaking:
In general terms the project will develop, conduct, and evaluate the results of an educational program for leaders in a community faced with environmental problems related to population changes. The educational program will be designed to provide useful information illustrating the interactions between environmental problems and changes in rates of birth, death, and migration. The knowledge to be acquired by the community leaders should enhance their ability to deal with the environmental issues with which they are confronted, and perhaps enable them to continue a similar educational program on their own.

Selection of a site for the undertaking:
The first step was to select a community of medium size in which it would be possible to undertake an educational program designed to provide useful knowledge about population changes and interactions with problems of concern to existing community organizations. The city of Fall River, Massachusetts was identified as a good site for the undertaking. Although Fall River at present is not undergoing rapid increase in total numbers, its environmental problems are closely related to the consequences of changes in the age distribution of its population and its migration patterns.

Stages in conducting the project:
The project will take place in three stages: design of curriculum and preparation of materials for seminars; conduct of seminars and collection of data; and evaluation and formulation of recommendations for programs suitable for general use in community education.

Value of the project:
In addition to the anticipated effects in Fall River itself, the project will increase our understanding of the general problem of providing essential information to people in urban areas. The experience should assist in making future educational programs more effective in resolving the environmental and population issues of urban societies.

Other teaching institutions:
Two other teaching institutions in the area of Fall River may become involved in this project. This possibility has arisen as a result of meetings with various members of their faculties.

Outline of project:
The project has three stages. In the initial stage we propose to develop the seminar curricula, collect pre-seminar data, prepare demographic resource materials, and construct evaluation instruments. The second stage will consist of the series of seminars, and the collection of data upon completion of the seminars. The third stage will be devoted to evaluation of the extent to which the knowledge and skills presumably obtained in the seminars are being applied in resolving problems the agencies are working on.

Hypotheses:
The project will provide an opportunity to test four hypotheses, as follows:

1. The seminars will increase the population literacy of the individual participants (the level of population literacy will be operationally defined by the number of correct responses to items in the pre- and post-seminar questionnaires which pertain to demographic facts, concepts and relationships).
2. The seminars will improve the ability of individual participants to use demographic data on Fall River in making their decisions as community leaders (for example, demographic skills implied here would include an improved ability to locate existing demographic information on Fall River, to collect presently non-existent data, and to interpret accurately a population pryamid).
3. Subsequent to the seminars, the individual participants will be able to explain to their associates the meaning and importance of demographic knowledge for the process of analyzing environmental problems.
4. The organizations which sent members to the seminars will deal more effectively with their specific environmental issues than the organizations not exposed to the educational program.

Evaluation:
There will be two main types of evaluation. The first will consist of the subjective impressions of the project staff, supplemented by those of the participants, of the overall quality of the organization and administration of the project. Towards this end, each staff member will maintain a current notebook concerning problems encountered during the project, how the problems were handled, changes in plans and reasons for the changes. The input from participants will come primarily from meetings with them after the second observation period, regarding various components of the project.

The second type of evaluation will involve the analysis of data to test the four project hypotheses. The data collecting instruments will consist of a questionnaire, an interview schedule and an observation schedule. The questionnaire and the interview schedule will be used together to collect data for testing hypotheses 1, 2, and 3. The observation schedule will be used to obtain data for examining hypothesis 4.

There may be a third criterion, namely, evidence in the community of an effort to continue this kind of education after the project is over.

Workbooks:
Workbooks were developed for the seminar series on maternal and child health, which helped considerably in organizing the sessions. On the basis of this experience, workbooks will be given to each of the participants to serve as a research and study tool. They will contain copies of the basic statistical

information and maps which will be used during the course of the seminars, and simple problem sets to complete as homework between the meetings. They will also contain a bibliography of books available in the Fall River Public Library in case the participants are interested in further reading.

For each seminar series the curriculum will be specially tailored to meet the stated purposes of the organization in which the participants are members, as follows:
1. We will identify the total popluation for which the organization or agency is responsible, its sub-units, and their characteristics. We will categorize the specific problems being confronted by the seminar participants and the types of persons involved with each. We will introduce fundamental demographic terminology and concepts, using Fall River as a source of examples. We will present and discuss causes of population changes and how these changes relate to environmental and other problems.
2. In each seminar series the participants will become familar with the existing sources of information on the population of Fall River.
3. With the help and guidance of the project staff the participants in the seminar series will design the frequencies, cross-tabulations and correlation tables linking the information from the data sources to their particular interests. The program will be run by the staff at the Harvard School of Public Health Computer Center.
4. At the next meeting the tables will be presented to the group and discussed. In this way we hope the participants will have the feeling of accomplishment and participation in computer analysis, and become familiar with population changes in each of the 35 census tracts of the Fall River SMSA, and the environmental implications of these changes.

Seminar study project:
After the participants have become familiar with existing sources of data and have studied the information that they contain relating to their own interests, they will design, with the guidance of the project staff, a small and simple study which they themselves can conduct in the community to supply a modest input of data which does not already exist. An example of such a study would be to have the participants from the Citizens' Board of the Fall River Planning Office seminar group conduct a study on household waste, the type, weight, and methods of disposal, in order to help the city plan its garbage collection and sewage treatment more effectively.

Finally, the seminar groups will draw up a list of priorities relating to their special interest which they will present to the larger groups of which they are members. They will be expected to prepare specific recommendations for future action of the organization.

The staff will prepare a final report on the Fall River Community Education Project. The primary purpose of the report will be to describe the extent to which the project achieved its goals. This description will contain the results of both the statistical analysis and the subjective evaluation, including an estimate as to the extent of continuation of such activity in the community. The report will also contain the workbooks and other curriculum materials, and the questionnaires, interview and observation forms prepared for the project.

-J. Strauss

PROGRAM TITLE: PROGRAM IN URBAN SOCIAL AND ENVIRONMENTAL POLICY

DIRECTOR: Hermann H. Field, Tufts University, Eaton Hall, 307, Medford, Massachusetts 02155. 628-5000 Ext. 144 or 350

With the passage of time, two shortcomings of traditional environmental education efforts have become evident. First of all, much of the training has been narrow, addressed to only a limited aspect of environmental policy, and presented from the perspective of narrow disciplinary lines. Secondly, all too often, whatever progress is made in academic institutions is not adequately transmitted to practitioners and other key decision-makers who are in a position to bring about preservation or improvement of the environment.

The Tufts University Graduate Program in Urban Social and Environmental Policy was instituted in September, 1973, in an effort to meet both of these problem areas with a fresh approach. The guiding emphasis of our program has been the transcending of the previous narrowly defined coursework in environmental policy through the creation of an interdisciplinary problem-centered approach to social policy analysis in the field of environmental protection (as well as the related policy areas of health, education, transportation, and citizen participation). At the time that we planned the program, we intended to help bridge the academic/practitioner gap first of all by training future practitioners, and secondly through informal means by bringing practitioners to our campus for "guest appearances" at seminars and other classes.

This proposal has been designed to strengthen our ability to achieve the previous goals. We propose to add, on a pilot basis, a series of components which provide institutionalized mechanisms for the development and presentation of a broad-based multi-faceted approach to environmental problems for public agency and media personnel who have been traditionally schooled to see problems in relative isolation. This approach to problem solving has been the focus of our graduate program since its inception.

We propose to tie together, in a formalized way, environmental practitioners (both public and private), academia and the public

sector and, thus, draw upon the resources of mutual interactions with the focal point being seminars and forums. Following the rationale outlined above, we are seeking to provide a multidisciplinary framework for improved environmental understanding to three distinct participant/target groups:
1. Future practitioners in the field of environmental affairs who are currently students in the Tufts University Graduate Program in Urban Social and Environmental Policy.
2. Current practitioners in the varying governmental and public interest organizations who are now making or influencing environmental policy.
3. Representations of the mass media, and through them the wider public who are called upon to form informed judgements concerning environmental matters.

The principal objectives of our pilot project are mutually supportive, but for purposes of analysis can be related to each of the three target groups outlined above:
1. Future practitioners - improved graduate education: to broaden and strengthen the on-going masters program through institution of a number of mechanisms to bring about close interaction with current practitioners.
2. Current practitioners - improved environmental training: to broaden and strengthen understanding of environmental problems and potential solutions through involvement in academic coursework and related programs designed for this purpose.
3. Media/public - to improve public understanding of environmental matters through the training of environmental reporters, and hence improving the sophistication of the coverage of environmental events.

The basic objective of our proposed project can thus be summarized as the application of a broad interdisciplinary framework for the education and training of current and future practitioners in the fields of environmental affairs and in the mass media which report upon environmental affairs to the public. Although we will be providing direct training to only a limited number of individuals, we fully expect to see numerous "multiplier effects". As these individuals return to strategic places within their organizations, they can be counted upon to transmit the skills and understandings they have developed at Tufts to others of their colleagues and to the public at large. Taking this multiplier effect into account, we can define a considerably broader target group than the participants in the pilot programs herein proposed.

In order to achieve the objectives and provide the benefits outlined above, Tufts University proposes to broaden its recently instituted Graduate Program in Urban Social and Environmental Policy by adding a series of components designed to increase the interaction between our faculty and students and current practitioners in the field. In all, four new components will be developed and implemented:
1. An Environmental Fellow Program wherein officials in Massachusetts State government and federal Region I agencies dealing with environmental affairs would obtain released time to attend

coursework at Tufts and otherwise participate in Graduate Program activities; arrangements would also be made for key staff of the mass media to begin similar participation.

2. An Environmental Seminar Series wherein the Fellows and those graduate program students would meet with academic and other experts in environmental matters for an interchange of ideas within an intensive study framework.

3. An Environmental Forum Series wherein guest leaders in the seminar series would give public lectures and otherwise participate in a range of open-to-the-public activities in Medford and the greater Boston area.

4. A Joint Tufts-Agency Directed Internship Program wherein Tufts faculty and the leadership of the agencies providing Fellows would meet periodically, define agency research needs, and jointly select graduate program students to serve as interns to help meet these needs.

The Tufts University Graduate Program in Urban Social and Environmental Policy represents the ideal vehicle for the achievement of the project objectives outlined above. The Program, which admitted its first students in September 1973, is a two-year interdepartmental Masters degree program designed to offer an alternative to the narrowly defined traditional offerings of professional schools by preparing its students for the more flexible capability required of present and future urban managers, policy makers, and consumer advocates. As such, it emphasizes broad comprehension coupled with focus upon a specific policy area and consists of both academic training and field experience.

The five policy foci include: environmental policy; health care; education; transportation; community organization and development.

Coursework in these five areas is provided primarily by the Tufts Departments of Political Science, Sociology, Economics, Education, and Civil Engineering. Program students also draw upon courses in other Tufts Departments and nearby universities through cooperative arrangements.

-Sheldon Krimsky
Deputy Project Director

PROGRAM TITLE: THE HABITAT PROJECT

DIRECTOR: Arthur R. Cohen, WGBY TV 57, 1 Armory Square, Springfield, Massachusetts 01105. (413)781-2801

The project is charged, under terms of its P.L. 91-516 funding, with producing a series of television programs on environmental issues which concern citizens in Western Massachusetts. Presently our plans call for a series of eighteen thirty-minute programs starting in the fall of 1974. The programs will be broadcast every other week. Our subject area will be broad---including discussions of the natural and the urban environment.

This is the third season of the Habitat Project. The first two seasons ran from September 1971 to June 1973. The program was not produced last season because of a lack of funding. We are an entirely new staff, just getting to know one another. It is too early to say just what specific topics will be covered.

Our ultimate product will be a television show. Most of these programs will contain discussions of several topics, sometimes unrelated to one another. In all cases we will be focusing on problems of concern to our region rather than national problems although at times the two might be similar.

-A. R. Cohen

PROGRAM TITLE: HALE RESERVATION - ENVIRONMENTAL EDUCATION

DIRECTOR: James E. Earley, Executive Director; Len Myers, Assistant Director; 80 Carby Street, Westwood, Massachusetts 02090. (617)326-1770

Our objectives are mainly to expose people to natural systems and beauty in the natural world. We have formal environmental education programs for urban and suburban schools as well as adult education courses and workshops. Also, coordinate recreational programs with same goals in mind.

Hale Reservation began as a Boy Scout reservation in 1918 and was incorporated in 1930. It actively began broadening its scope ten years ago and in 1970 the entire Boston sixth grades began participating in environmental education. 1973 initiated adult education courses and workshops.

Environmental education presently is a field trip program mainly with Boston sixth grades. Some other metropolitan schools are involved on a one day basis. We provide a teachers guide for preparation of children and we provide instructors for the program.

One major problem is publicity for adult education programs. We have solicited help from newspaper articles and radio broadcasts but lean heavily on word-of-mouth.

Future plans include a wilderness ecology program for inner city kids. It would combine the best of "Outward Bound" and "Acclimatization." Mountains and rivers would be the setting.

-F. L. Myers

PROGRAM TITLE: UNITED COMMUNITY ACTION FOR ENVIRONMENT EDUCATION OF WORKERS AND CITIZENS

DIRECTOR: Margaret Allen, Solidarity House, 8000 East Jefferson Avenue, Detroit, Michigan 48214. (313)926-5000

The primary goal of this P.L. 91-516 grant for FY 1975 is to plan and conduct creative environmental conferences in urban communities. The conferences will bring together a broad group of environmentalists and trade unionists to generate action programs on a locally important issue, like water quality or mass transit. Two or three major topics will be selected for conference format development. The conference will focus on the local solutions to the major topic. A significant component of each conference will be to focus on developing skills to utilize community resources. Because the conference focuses on a specific issue, participants will develop those skills by actually working on the issue at the conference.

-M. Allen

PROGRAM TITLE: CONSUMER SEMINAR ON POSSIBLE EFFECTS OF INGESTING WATER AND INHALING AIR CONTAINING ASBESTOS-LIKE FIBERS

DIRECTOR: David L. Peterson, Director, Water and Gas Department, City of Duluth, 414 W. First Street, Duluth, Minnesota 55802. (218)727-4522

The Water and Gas Department of the City of Duluth is the largest supplier of water among U. S. communities along Lake Superior.

As such, we feel obligated to respond to the best of our ability to the concerns and questions of our consumers about possible contamination of our water by the dischage of taconite wastes by Reserve Mining Company into Lake Superior.

Concern was heightened by the monumental U. S. District Court case of the Environmental Protection Agency and the States of Minnesota, Wisconsin and Michigan versus Reserve Mining Company.

The HEW Minigrant (P.L. 91-516) provided a means to make available to our consumers and all residents of the Duluth-Superior Market Area, in layman's language, the testimony of those experts found to be correct by the Court's ruling.

Meanwhile, the case continues, with the only major decision to date being a finding by the Circuit Court of Appeals that insufficient evidence has been presented to substantiate the claim that the discharge constitutes a hazard to health.

We are presently (August, 1974) in a holding pattern until enough of the questions have been resolved in the Courts to justify our program.

-D. L. Peterson

PROGRAM TITLE: COMMUNITY ENVIRONMENTAL EDUCATION

DIRECTOR: Gian C. Gupta, Department of Environmental Health, Jackson-Hinds Comprehensive Health Center, P.O. Box 173, Utica, Mississippi 39175. (601)885-6021

1. Objectives and need for assistance:
The low income rural residents of Hinds County drink polluted water and dispose of sewage on the ground and litter their yards with solid wastes, thus creating a community health hazard by harboring disease carrying insects and rodents. State and County health departments are neither concerned nor have the means to enforce legislation prohibiting these local environmental pollution acts.

The principal objective of the project is community environmental education with an emphasis on health and socio-economic effects of environmental Pollution.

2. Results and benefits expected:
Apart from the educational standpoint it is expected that the rural low income residents will be motivated to improve their life patterns by both self help projects and projects leading to institutional and legislative changes in order to improve the local environmental pollution deficiencies. It will not only have a direct effect on their own personal health but also on community health. Environmental health surveys conducted by this health center show that three out of every five families living in the rural areas without water and sewage facilities suffer from one disease or the other related to unsanitary living conditions.

2. Approach:
Outreach centers in the rural communities of Hinds County have already been established by this health center. Community participation appears to be maximum at its centers in Bolton and Utica. It is proposed to arrange a monthly workshop at these two outreach centers for six months each; first six months being at Utica.

Community participation averages between 40-100 members when the health councils of these areas meet for their monthly sessions. The workshop will be conducted by a physician and an environmentalist working as a team. Consultants from other fields (socio-economic) will be utilized from the State College in Jackson and other State and Federal agencies.

Participating community members will be made aware of: (1) the local environmental pollution problems existing in the area and their health effects and (2) the available local resources and other State and Federal resources that could possible be utilized to solve these problems. The second part will emphasize on the community efforts that could be undertaken to elicit a greater response from many agencies mandated to improve environmental deficiencies of low income residents. It would also include information on the possibility of exploring and effecting institutional and legislative changes both at the local and state level.

The third part would deal with resolution plans. Some assistance will be provided to enable the residents to decide on the course of action they need to take.

The project is dependent on community participation which has been assured by the Area Health Council officials and the Community Organizers working at the Jackson Hinds Comprehensive Health Center.

In an environmental education project of this type the benefits may not be achieved (or apparent) during the project period itself but nevertheless community education is not a waste. The immediate effect can possibly be an increased interest in the community for solid waste disposal from individual premises to the county dump or the landfill. It is expected that the public health related disease incidence may decrease amongst the participating members. Residents may choose to apply for water well loans or housing loans to Farmers Home Administration and other agencies. Data will be compiled on the participating members with assistance from the health center.

4. Geographic location:
Area covered by this project is the central part of Mississippi. Two rural communities of Hinds County will be served. Approximate immediate population to benefit is 2,500.

-G. C. Gupta

PROGRAM TITLE: FONTENELLE FOREST NATURE CENTER ENVIRONMENTAL EDUCATION PROGRAM

DIRECTOR: Robert W. Fluchel, Fontenelle Forest Nature Center,
1111 Bellevue Boulevard, Bellevue, Nebraska 68005.
(402)731-3140

Fontenelle Forest Nature Center objectives are to preserve the Forest in its natural state and to provide high quality informative programs to the general public as well as to 15,000 and 20,000 school children who utilize our formal environmental educational program. The Nature Center conducts teacher training workshops, lectures, field trips, guided hikes and classes on a variety of topics including: natural communities, plant succession, dendrology, adaptation, aquatic habitats, waterfowl and birds, wildflowers, wilderness survival, orienteering, nature photography, astronomy, history hikes, conservation, etc. The Nature Center also operates two youth science clubs that explore the natural areas near Omaha on field trips.

The coming school year will begin a transitional period during which the Nature Center's environmental education program will gradually be adapted to better meet the expanding needs of school districts in this region. Fontenelle Forest's primary thrust will continue to be aimed primarily, but not exclusively, at intermediate grade levels.

During the 1974-75 school year, the Nature Center will offer on a limited basis, specific concept-oriented activities, which will complement the traditional orientation and overview of the habitats of Fontenelle Forest. During this transitional period, these special activities can be offered only to the extent that staff members trained specifically for that activity are available. Thus, the Nature Center staff will do its best to provide, but cannot guarantee in advance any specifically requested activity.

-R. W. Fluchel

PROGRAM TITLE: RESEARCH AND COMMUNITY EDUCATION ESSENTIAL TO AN ECO-SYSTEM APPROACH TO ENVIRONMENTAL DESIGN

DIRECTOR: W. Cecil Steward, Dean, University of Nebraska, College of Architecture, 107 Architecture Hall, Lincoln, Nebraska 68508. (402)474-3553

1. OBJECTIVES

Environmental information has not been available in a centralized, comprehensive format to the decision makers for community development in the State of Nebraska. The current concern and assistance to community improvement efforts centers around the environmental elements of air, water, and solid waste. Very little awareness has developed around the need to consider the inter-relationships of population, pollution, resource allocation and depletion conservation, transportation and technology as elements of the total context of the environment in the planning and maintenance of human settlements. The "eco-system" concept of man's relationship with his natural man-made surroundings is not well understood and little practiced by community decision makers.

Communities and neighborhood units, large and small, in the State of Nebraska are experiencing ever increasing pressures for the accomplishment of planning, the implementation of land-use controls, the renewal of districts and neighborhoods, the conservation of resources, and the drafting of effective public policies to regulate the affairs of community development. Many of the small communities cannot afford the creation of professional staff positions nor can they often afford the hiring of planning or design consultants to deliver planning and design services. The larger communities of the state, on the other hand, experience deficiencies due to the problems of scale, diversity, complexity and the lack of technical knowledge among the decision makers, often making their task of community development equally ineffective. All community units would obviously benefit from "the development of social and cultural indicators for the environment in order to establish a common methodology for assessing environmental developments."

Concurrently, the practicing professionals concerned with community development, whether as private consultants or as employees of state, local or regional development agencies, are experiencing needs for programs of continuing education to maintain their currency with the knowledge of the field. Planners, architects and environmental designers are having difficulty coping with the knowledge explosion.

The College of Architecture, University of Nebraska-Lincoln is the state's professional school with the disciplines most directly concerned with community development. The resources of the disciplines of architecture and planning are coordinated to the point of community service in a manner related and contributive to the educational programs for the professions.

While the primary role of both the department of Architecture and of the department of Community and Regional Planning is educational, the service role has tremendous potential for the state.

The college's professional programs function on the philosophy that the theoretical and technical base of knowledge must be developed before the student can effectively participate in laboratory studies of solutions to complex problems in communities and regions. Yet the courses offered must seek to provide practical examples and controlled field applications in which to provide a satisfactory exposure to the theories, processes, problems, programs and techniques related to the practice of planning design and development. The past activities of the college's Urban Research and Development Program with studies of downtown renewal and the community Design Center-Omaha with its continuous provision of design and planning services to the black community are recent and successful examples of community service/community laboratory programs.

The College of Architecture is developing resources which are organized in the following areas of community service through the Community Resource and Research Center (CRRC):

a. The performance of community development feasibility studies.
b. The influence of community awareness to environmental values.
c. Conceptual consultation services for community organization preliminary to the beginning of specific development projects.
d. The provision of design and planning services to populations who would otherwise not have access to services.
e. Consultation services on the drafting of related public policy.

f. Definition of criteria for environmental management.
g. The establishment and maintenance of a center of information on state and federal resources for implementation of community development plans.
h. The maintenance of a center of continuing education for community officials.
i. The maintenance of a central state repository for community design and development technical reference materials.
j. The establishment and maintenance of a center for community environmental education.
k. The provision of consultation services on planning and design technology.
l. The performance of independent topical investigations concerning concepts, processes, theories, techniques and/or technologies.
m. The focus of professional communication concerning community development through the sponsorship of state and national scope seminars and distribution of printed materials.

The CRRC has been created as a direct line function to the Dean, College of Architecture. The Director of the center serves as a voting member of the College Executive Committee on an equal level with the academic department chairmen. All community service, research and contract studies relating to the college are coordinated through the Center on a horizontal basis of organizational structure. The CRRC is functionally responsible to:

a. Collect, catalog and distribute information on all community related resources and events of the College of Architecture and other relevant resources cooperating within the academic community.
b. Organize and maintain a repository of information, and technical reference materials in library and multimedia format on subjects pertinent to community development.
c. Supervise and coordinate:
    1) The Omaha Community Design Center programs.
    2) All research and analysis studies performed within the college.
    3) All community education and extension programs conducted through the auspices of the college.
d. Assist faculty of the college with collective, curriculum related, as well as independent interests in investigations related to community development.

The program proposed seeks to expand existing resources of the CRRC of the College of Architecture to provide the State of Nebraska with a center of environmental data and environmental educational resources for all communities classified "of the first class" and above (thirty towns and cities).

Personnel development and community education functions of the CRRC will be directed to the following target groups on a state-wide bases: architects, engineers, planners, landscape architects, construction contractors, developers, chambers of commerce, public school teachers and administrators, city councils, community and neighborhood leaders, regional governmental councils, planning and zoning commissions, state legislators, state planning agencies, industrial foundations and districts, planning districts and authorities, legal profession/state judiciary, students of architecture, students of planning.

2. RESULTS OR BENEFITS EXPECTED

The immediate benefit which will accrue from the support of this proposal will be the existance of a state-wide, "eco-system" base of data on the present quality of the community environment. Environmental designers who are concerned with the environment of the Nebraska towns and cities with populations above 5,000 persons will have access to a new resource in their planning efforts. Young professionals-in-training will have immediate access, exposure and experience in the perception and assessment of their environment.

The mid-range benefits will accrue from the increase in organized community education and extension programs to be conducted by the CRRC, resulting in a new breadth and level of community environmental awareness.

The long-term results anticipated are communities which will afford a higher quality of life for the residents, human settlements that are accomodated in their natural and man-made surroundings in a more humane way, and living and working environments that express a reverence for life.

3. APPROACH

Three tasks are proposed to occur over a period of two years: (a) A state-wide environmental quality inventory of communities with 5,000 or more inhabitants, (b) the establishment of an environmental data and resources inventory as an aid to community development, and (c) studies of alternative designs for community development within the context of eco-system theory.

a. Community Environmental Inventory
The CRRC will organize teams of research assistants and advanced students in the professional architecture and planning programs to survey and inventory the environment of one metropolitan class community (Omaha), one primary class community (Lincoln), and twenty-eight first class communities. The objectives will be to supplement existing technical data on pollution control and environmental health by the addition of social, cultural, aesthetic and civic data, and to bring the data base for each community to a level of effectiveness as an aid to community development.

The activities proposed are:

1) Visual survey
2) Photographic documentation
3) Interview of local interest groups - determine level of awareness
4) Record and categorize the location and condition of existing municipal data
5) Complete an environmental assessment matrix (similar to the Department of Interior "Information Matrix for Environmental Impact Assessment") for each community.

b. Environmental Data and Resources Inventory
The CRRC will collect, catalog and edit a state-wide guide to action centers and data sources for environmental concerns.

The activities proposed are:

1) Select input from the community surveys
2) Review state and regionally located federal agencies, commissions, offices, etc., for activities and data of an environmental impact nature
3) Match categories of data with available sources
4) Produce handbook of impact data
5) Establish CRRC Environmental Data Index and Filing System

c. Community Development Design Studies
The CRRC will organize and conduct studies of alternative approaches to the environmental design of human settlements. The studies will be performed from the accumulated data base of tasks a and b above and will be accomplished in consort with the civic leaders of the communities selected for study. While the principle justification for the accomplishment of tasks a and b is the need for data and practical environmental planning tools that can be implemented in today's communities, there is a correlated need for the study of design alternatives on a theoretical basis. The projection of viable models for community development will aid in the discontinuance of constructing human settlement in such a piece-meal trial-and-error fashion as currently practiced.

The activities proposed are:

1) From the thirty communities previously surveyed, select five with distinguishable characteristics in size, geography, growth potential, economic influence, diminishing population, community infrastructure, social structure, etc.
2) Develop a program of community needs and opportunities for each community using eco-system modeling techniques

3) Perform design concept studies of selected alternatives for each community
4) Conduct community awareness seminars on the projected designs
5) Record seminar feedback from citizens and civic leaders and add data collected to CRRC Environmental Data and Resources file system.

-W. Cecil Steward

PROGRAM TITLE: WAU ECOLOGY INSTITUTE

DIRECTOR: Dr. J. Linsley Gressitt, Wau Ecology Institute, Box 77, Wau, Papua New Guinea.

This young institute, a non-profit organization earlier known as Bernice P. Bishop Museum New Guinea Field Station, is concerned with education, research and the protection of the natural environment. It is located on the lower slopes and top of My Kaindi near Wau, in the Wau Subdistrict of the Morobe District of Northeast New Guinea, or approximately in the geographical centre of Papua New Guinea.

Wau Ecology Institute is dedicated to education and research in tropical ecology, and in conservation. The Institute anticipates being of service to the new nation of Papua New Guinea in presenting environmental orientation and instruction on flora and fauna to the general public, and particularly to students of all levels, from schools and higher institutions. W.E.I. also carries out, and fosters, ecological research, and welcomes researchers, nature tours and others from within and outside the country. In the educational area particular emphasis on conservation is intended. In research areas special attempts will be made to understand the basic local ecological relationships, the general makeup and structure of ecosystems nearby, from sea level to the main divide, and factors in the change from forest to grassland and from grassland to forest.

Wau Ecology Institute is a daughter institution of Bishop Museum in Honolulu, having developed out of the former Bishop Museum New Guinea Field Station. The field station was commenced at Wau in June 1961 with the renting of two hectares of land with a house on Edie Creek Road. J.L. and M.K. Gressitt brought J. Sedlacek and family to commence surveys based at Wau. Mr. Sedlacek (assisted by Mrs. Sedlacek and son) continued as resident entomologist almost throughout the life of the field station, with absences on insect collecting trips to near and far areas, and retired in late 1971 just after the transformation from field station to insitute. In 1963 the rented property was purchased and in 1965 another house and one hectare of land were purchased lower on Edie Creek Road. In 1967 the four-hectare property below and adjacent to the first area was purchased, including the present house no. 4. The six contiguous hectares constituted the original arboretum. In 1970 a 4.5 hectare farm with house was bought in the middle of Wau Valley, as well as a small house and plot between the two areas on Edie Creek Road. In 1971 the 40-hectare Becula Plantation, including 22 hectares of coffee and 10 of virgin forest, was added. In 1972, after the establishment of the Institute, 10 hectares were added on the east, adjacent to the plantation and close to the original arboretum. The new land is being developed largely as part of the arboretum.

Wau Ecology Institute was incorporated as a non-profit institution in the Territory of Papua and New Guinea (now Papua New Guinea) on 29 October 1971.

The Institute is located on the lower north slope of Mt Kaindi, on the south side of Wau Valley, at 1150 to 1600 meters altitude. The area of the grounds is about 60 hectares, approximately one-third each in arboretum, coffee and native forest. There are two small laboratory buildings, and several small nurseries, some ponds, and small streams. There is a 10-room hostel as well as' two guest houses in the main grounds. At 2350 meters on the top ridge of Mt Kaindi is a branch station, with three metal cabins, equipped with 14 bunks, stoves, refrigerator and electricity. This is less than one hour's drive from Wau. It is three hours from Wau to sea-level near Lae. There is a camp at 2800 m on the Bulldog Road, near the crest of the main divide, one day's walk south of Edie Creek (on SW side of Mt. Kaindi, o hour drive from Wau). The Institute has an interest in the research station at Pindaunde, 3450 m, on Mt. Wilhelm.

The Institute's collections include an extensive and representative series of identified mammals and birds of this part of New Guinea, identified specimens of many of the local plants, and a partly identified collection of ecologically documented local insects. In the arboretum there are well over 200 species of local trees, as well as other plants, over one-half specifically identified.

Climatological data are regularly collected at 1200, 1800 and 2350 meters altitude, and there are also rain-gauges at the Bulldog Road camp at 2800 m and on the side of Mt Missim at 1400m.

There is a modest library of texts, reference works, journals and reprints. There are a few microscopes, and a modest assortment of equipment. Two dry rooms house most of the collections, microscopes and books. Vehicles include both standard and 4-wheel drive.

Other educational and research facilities include many labelled trees in the arboretum and several cages of mammals, birds and reptiles.

-J. L. Gressitt

ERIC DOCUMENT:
Three Phase Primary Science, Prase Three Evaluation. Interim Report. SE 018 439

PROGRAM TITLE: ENVIRONMENTAL STUDIES PROGRAM

DIRECTOR: James W. Morrison, St. Anselm's College, Manchester, New Hampshire 03102. (603)669-1030 Ext. 222

Phase One: Ecology at Manchester High School West

Under the supervision of Mr. James A. Hall, Department Chairman of the Science Department, three courses are conducted in Environmental Education. Information gathered through research, including field trips is disseminated to other schools in the area.

Phase Two: Community Education

Under the direction and with the cooperation of Mr. Henry McLaughlin, Superintendent of the Manchester Schools, assisted by Mr. Louis Desruisseaux, Public Schools Federal Funds Coordinator, and assisted by Mr. James W. Morrison, Administrator of the Grant and Assistant to the President of St. Anselm's College, community organizations and other schools in the area are given the opportunity to hear students' presentations with films or slide tapes and demonstration equipment, and coordinate community education programs.

Phase Three: A Curriculum Guide to Environmental Studies

A collection of outstanding curriculum developments by qualified high school teachers and specialists in the field of environment studies presents new directions in ecology education methods.

Phase Four: Student-Made Equipment

Public, private and parochial school students construct homemade environmental studies equipment.

Background

In September 1972, the Manchester Public School System and St. Anselm's College became joint recipients of a Community Environmental Education Project, funded under U.S.O.E. Grant #OEG 71-4620.

Since September 1971, the enthusiasm for this course has grown to the degree that many high school students are willing to drop other classes to become members of the environmental studies program. The student's enthusiasm and concern can only bring about the positive reaction necessary for the success and welfare of future generations.

The students have experienced the unfavorable affects of field work. Insect bites, wet feet, allergic reactions have not discouraged them. The classrooms have been the swamps, bogs, gravel-pits and dumps. Despite the fact of never having had formal training in chemistry or biology, many students have learned the fundamentals sufficiently to be able to successfully use Hach kits and Millipore Equipment.

Through the efforts of the students, the State of New Hampshire has set aside a tract of land to become a nature park. Students presently enrolled in the program have become most knowledgeable in areas of environmental biology and water pollution. Many have seen reasons for legislation to help control some of the unnecessary waste of our state.

The students are grouped heterogeneously in the classes, combining the National Merit Scholar, National Honor Society Student with the average and slow student. The potential drop-out has also found fulfillment in the program. The physically and emotionally handicapped are not excluded from this most unusual course. The concern of the able student for those less fortunate is the fulfillment of the human ecology. Often times the course creates momentary conflicts with other teachers when the interested student lingers in the lab. Many students have graduated carrying with them the importance and relevance of Ecology I and the sequential offering, Ecology II.

Community Services

1. Slide shows and Films

There are two slide shows, each approximately forty minutes long. One slide show deals with the Pollution of the Merrimack River. This slide show is narrated by students who have been instrumental in developing the presentation. Factual matters concerning this famous river are revealed and the contributing factors of pollution are shown. Slides reveal the actual chemical and sewerage wastes, as well as the after affects, which endanger the wildlife along the banks.

The second slide presentation is titled the Manchester Water-Shed. This slide show deals with the polluting factors as well as the areas not yet endangered. Included are unusual closeups of wildflowers, relatives of exotic plants in far off regions growing in the Marrimack Valley Region, which are endangered by pollution if it maintains its present rate. The 8mm movies are available for showing as separate shows or along with one of the slide programs. The contents are scenic with the beautiful rhododendron maxims and scenes of pollution. The films are 10 minutes long and are narrated by students who have been part of the camera crews.

Slides and films presented by students have a fresh and honest approach viewed in their enthusiastic presentation. The students from Manchester High School West have been on the road showing the program to schools, college service clubs, as well as church groups and school boards. Each showing has met with an enthusiastic reception. Many groups schedule return appearances to present the importance of the message to more of the public.

Video-tape presentations contain materials about the pollution and its affects on the Merrimack River and footage of an area where a defoliate was used which caused a severe danger to a rare species of plantlife. These shows are in black and white and are usually part of displays used at conventions or large gatherings. Students and programs are available by appointment with Mr. James A. Hall, Manchester High School West. Two alternate days are requested because of the popularity of the programs.

2. Ecology Test Demonstrations

Another innovative approach adopted by students from Manchester High School West and Trinity High School students is the actual testing of polluted or suspected polluted water. The H Kit is demonstrated, showing the audience how specific tests are made for chemical presence. The chemicals which may be present are dissolved chlorine, phosphates and sulfates. The popularity of this demonstration is that members of the audience are permitted to participate. Millipore Equipment is demonstrated for recognition of phyto and zooplankton; included is a test revealing tars and nicotine deposits from cigarettes. Many teachers see this as a valuable deterrent to smoking by youngsters. These tests and demonstrations are part of the microbiological show.

3. In-Service Training for Teachers

Teachers who live in the New Hampshire area may participate in a program designed to train them in the use of H Kits and Millipore Equipment.

This program consists of twenty hours of study with operational use of equipment and field trips with students. The mechanics of introducing an environmental studies program into a school system are covered.

4. Home-Made Environmental Testing Equipment

This feature is very popular with teachers who wish to experiment with environmental equipment but who do not have funds available for testing equipment. Directions are given to produce equipment from materials available from community resources. Substitutes are made from leftover plywood, parachutes and soda bottles. Secchi Disks, plankton nets, dredges and plant presses are created at the in-service workshops. Despite their homey quality, these devices give accurate results. Early request is important, as this phase of the porject is popular.

5. Demonstration units--Student Manned Booths

Students are sent to conventions, fairs, and sportsmen's clubs. The students man a booth using video-tapes, demonstration kits testing water, soil and microbiological units. H and Millipore equipment is explained and demonstrated.

6. Environmental Studies Guide
The environmental studies guide is a guide in 'mini-chapter' form. The guide is a popular presentation for science and non-science personnel in secondary schools and should assist them in planning environmental studies programs and projects. Diagrams for manufacture of equipment, procedural matters for planning before, during, and after a field trip in all areas, injury, public relations, transportation, insurance are listed. Methods of testing, collecting, preserving, and reporting are included. The volume should be beneficial to every teacher in New Hampshire high schools and is available on request from the Environmental Studies Program.

-J. W. Morrison

ERIC DOCUMENT:
A Manchester Watershed Training Project. SE 018 149

PROGRAM TITLE: CONSERVATION SERVICE/PROJECT SOAR, BOY SCOUTS OF AMERICA

DIRECTOR: Ted S. Pettit, Boy Scouts of America, North Brunswick, New Jersey 08902. (201)249-6000 Ext. 549

The objectives of the Conservation Program of the Boy Scouts of America are twofold:
1. Be perceptive and responsive to the needs of the Nation in the area of environmental action.
2. Respond to the needs of the BSA in the areas of environmental education and action: To the end that all $5\frac{1}{2}$ million members of our movement, and through them, the American public commit themselves to a concern for:
    a. The vital importance of all natural resources.
    b. Their interdependence with their world environment.
    c. Their responsibility as citizens for the development of a culture that guarantees an ecologically balanced environment.

The principle responsibilities of the Conservation Service are:
1. Integration, development, implementation, and promotion of ecology and conservation activities in the total Scouting program

so that every boy, no matter how long his stay in Scouting, becomes aware of the tremendous importance of our country's natural resources to himself and his country and comes to recognize his obligation as a citizen to take appropriate action.
2. Guide local councils through regions in the use and management of all properties to the end that the lands owned by the Scouts are improved with use over the years, instead of being worn out. To help guarantee to boys of the future that they will have as good or better opportunities for Scout camping as the boys of today. The objectives are to convince councils that they need now to acquire lands to meet their future needs and to so manage what they now own, that the property will be improved.
3. For the purposes of helping councils in property management, program development, advancement, and organization of new units, provide training materials.
4. Overall supervision of the BSA Conservation Education Center in North Brunswick, New Jersey. Our purpose is to constantly improve its effectiveness as a teaching device and to keep up to date in terms of new conservation thinking and practices.
5. Conservation program development and operation at jamborees and other national events for the purpose of dramatizing conservation for boys and teaching some conservation fundamentals that are part of citizenship training.
6. Cooperation with other organizations on special conservation activities that meet a need, for example, Keep America Beautiful and its anti-litter program; AFTMA-Clean Waters Project; AFA-Tree Planting Project.

PLACE OF ECOLOGY AND CONSERVATION IN THE STRUCTURED SCOUTING PROGRAM

1. Eight of twelve skill awards must be earned to advance to First Class. Thus, a boy has the option of earning the skill awards in Conservation and Environment.
2. For advancement to Eagle, a boy must earn 24 merit badges. The following are required badges for advancement to Eagle: Citizenship in the Community; Citizenship in the Nation; Citizenship in the World; Environmental Science. Of the optional badges, a boy may earn: Soil and Water Conservation; Fish and Wildlife Management; Forestry; Geology; Oceanography; one of five natural history badges.

Semi-structured Programs - Well planned and highly promoted, but still optional with troops:
1. Camp learning experiences and projects.
2. Such activities as Project SOAR.
3. Special council events: Camporees; Scout Shows: Fish Derbies; Conservation Training Camps; Ecology Workshops.

Nationally Sponsored Events - Highly promoted, but still optional:
1. High Adventure Bases with ecology-conservation programs (Maine, Wisconsin, Kentucky, Minnesota, Philmont).
2. Ecology Workshops.
3. Jamborees.
4. LIFELINE/U.S.A.

Awards:
1. Hornaday Award.
2. President's Environmental Merit Award Program.
3. U.S.D.A. Awards for Councils.

-Walter J. Wenzel
Conservation Executive, BSA

ERIC DOCUMENTS:
1. Save Our Water Resources. Project SOAR. SE 018 320
2. Soil and Water Conservation Activities for Scouts. SE 081 321

PROGRAM TITLE: TEMPORARY STATE COMMISSION ON YOUTH EDUCATION IN ENVIRONMENTAL CONSERVATION

DIRECTOR: Eric Beamish, Room 409, Legislative Office Building, Albany, New York 12224. (518)472-2167

Commission expired March 31, 1973. Copies of reports produced are now available through the ERIC System, as below.

ERIC DOCUMENTS:
1. Third Report to the Governor and Legislature on Conservation Education. ED 077 715
2. Supplement to the Third Report to the Governor and Legislature on Conservation Education. ED 077 716

PROGRAM TITLE: BUREAU OF EDUCATION

DIRECTOR: Jerry E. Passer, New York State Department of Environmental Conservation, Bureau of Education, 50 Wolf Road, Albany, New York 12233. (518)457-3096

General goal of our programs is to provide youth and adults with information and educational resources so they may learn about their environment, its management needs, and our Department's efforts towards meeting those needs.

These goals are fulfilled through three main program areas:
1. Environmental Education Centers: Two are currently in operation, Rogers Environmental Education Center at Sherburne and Five Rivers Environmental Education Center at Delmar. Two more Centers are being developed, one in southern New York and one in western New York. A variety of environmental education programs and resources are provided for school teachers, students, and the general public.
2. Summer Environmental Education Camps for your teenagers (11-14) provide week-long "outdoor summer school" experience for 1200 young people each summer.

3. Seasonal Interpretive Programs at several locations in the Adirondack Park, Catskill Park, and at the Cape Vincent Fisheries Station on Lake Ontario provide "on the spot" environmental information to more than 40 thousand people each summer.

-J. Passer

ERIC DOCUMENT:
Toward a Systematic Approach to Environmental Impact Review.
ED 068 334

PROGRAM TITLE: ENVIRONMENTAL FORUM WORKSHOPS

DIRECTOR: Dr. Raul R. Cardenas, Jr., Department of Civil Engineering, Polytechnic Institute of New York, Brooklyn, New York 11201. (212)643-5539 or 8575

The general objectives involve communicating an understanding of the underlying technological considerations which affect public issues to the lay public. This will be done by providing to the public both information and education with regard to the environment, permitting exposure to the broad based ecological interrelationships and to focus on local, topical issues. This will be achieved by holding two free public-forum, all-day Saturday meetings. The specific topics include: wetlands; and drinking water. The specific locations are Westchester and Rockland Counties, New York. These are to held during the fall of 1974.
1. Education - to present to the citizen or community at the lay level an objective explanation and basis for understanding and learning of the basic scientific or technological considerations involved.
2. Focus - to assist the citizen in organizing pertinent technical considerations relevant to issues, political in base, which are at hand. At the local level, this would apply the learning to the specific environmental issue and inform the community where judgement evaluation or specific issues by technical experts are made and where disagreement as well as controversy is present.
3. Solution Evaluation - to present to the community a summary of unbiased, objective available options (if possible) relating to the specific issue with regard to decisions or judgements that can be made. Specifically, the consequence of action or inaction at the official level should be examined. If pertinent risk factors are involved, these should be examined.

The program was conceived during the spring semester of 1974. No pre-planning was carried out. Planning for the workshops once the project had been approved was begun during the summer of 1974. The Environmental Forum Workshops were held October 5, 1974 (Wetlands) and November 16, 1974 (Drinking Water).

Present activities in environmental education include program coordinator by the project director (Dr. Cardenas) of the Graduate Program in Environmental Health Science, Department of Civil Engineering, The Polytechnic Institute of New York. The workshops will produce two bound Proceedings which will be available to individuals, libraries and interested environmental groups. Since many local environmental organizations are cooperating in the workshops, they too will be recipients of these Proceedings.

No problems have been encountered. No plans are being made beyond these two workshops.

Two Proceedings of the Workshop presentations will be ready for distribution during the spring of 1975. The Proceedings will be available by writing Dr. Cardenas at The Polytechnic Institute of New York, Department of Civil Engineering, 333 Jay Street, Brooklyn, New York 11201.

-R. R. Cardenas, Jr.

PROGRAM TITLE: YORKTOWN: THEN AND NOW

DIRECTOR: Donald W. Skelton; Deborah Wasserman, Coordinator;
WNET/Channel 13, 304 W. 58th Street, New York, New York 10019.
(212)262-4200

WNET/Channel 13 has received a $25,000 grant from the Office of Environmental Education to work with students in Yorktown, New York in videotape. The students are to learn about Yorktown's environmental history, recording their information and conducting interviews and discussions on videotape, using portapak equipment. Students in grades 7 through 12 form the core group of researchers and technicians, with other students in the district and people in the community becoming involved as the opportunity arises. As the final step in the project, the students will put together a roughly edited production, probably a half hour in length, which makes use of some of their videotaped material. The exact content of the production will be determined by the students. In addition, they will be responsible for all technical work and editorial decisions.

Program objectives for the students who form the core group:
1. To learn about the environment and ecology of their town and how these factors have developed and changed from 1776 to today.
2. To learn how to research a topic through primary and secondary resources (books, experts, personal experience).
3. To learn the use of portapak and videotape equipment as a tool for learning, as a medium for interview, as a medium for recording information, and as a form of communication with the

community via recording and playback. Also to learn professional production techniques as they work.
4. To learn how to focus their ideas and edit their information into a comprehensive theme.
5. To become familiar with their town and its residents and politicians.

Program objectives for the school district (Yorktown #2)
1. To give the students an extra education opportunity through working directly on the project.
2. To involve the entire school district in a single project by inviting students of all ages to take part in some aspect of the project.
3. To enable teachers to take advantage of the resources brought into the school by and for the core group of students by inviting them to bring their own students to observe discussions and lectures.
4. To emphasize the value of the television medium in the learning situation.

Program objectives for the community:
1. To bring them into closer contact with the school's activities.
2. To enable them to express their opinions and recommendations about Yorktown's environmental and ecological problems.
3. To increase their awareness of Yorktown's ecology.
4. To enhance communication between adults in the community and students.

WNET/13 intends to accomplish these objectives in a variety of ways.

The student objectives - At the beginning of the school year, students in both Yorktown High School and the Mildred Strang Middle School were made aware of the impending project through their teachers and posters. A meeting was set up which was attended by approximately 40 students. These students were introduced to the techniques of videotape production and formed research groups to choose their areas of research. The students themselves, after receiving an explanation of the goals of the project, decided upon topics which they felt should be researched, and proceeded to research those topics from a historical and scientific point of view. Such topics included Yorktown's transportation, Yorktown's population, the uses of energy, waste disposal, sewage disposal, land development and so forth. They first concentrated on library research, in order to form a background of information to use as a basis for conducting interviews. As their knowledge of their areas grew, they began to interview local officials, experts and citizens. All interviews were recorded on videotape, increasing their proficiency with the medium simultaneously with the growth of their knowledge. As they were doing this, they constantly reviewed their progress, constantly thinking of new ways in which they could record their information visually. Some students went to the top of a mountain to record a panorama of the area; others visited a restored village to record costumed re-enactments of revolutionary crafts; and others recorded the traffic flow on various roads. All editorial decisions are being left to them, including the decisions involved in editing their materials into a cohesive unit.

Simultaneously, the students are putting together a demonstration tape to show to the community and WNET; this tape gives a general overview of their goals and samples of their early videotaping. The students are gradually developing relationships with town officials as they do their research. The Director of Town Planning has been telephoning students to let them know of events that might be of interest to them, and came to the school's studio to talk to them about the development of Yorktown and the procedures involved in building in Yorktown. The Town Engineer has come to meet the students, and the Town Supervisor has freely given of his time for student interviews. An Advisory Committee, made up of local historians, ecologists, educators and a former town supervisor has been working with the students to guide them toward resources. Some of them have been interviewed by the students as resources themselves. The students have also received favorable responses from local citizens, who have consented to be interviewed and who are anxious to volunteer help wherever needed.

Finally, the students are doing their own publicity, writing press releases, taking pictures and contacting newspapers. The four newspapers in the area: THE YORKTOWNER, THE EVENING STAR, THE REPORTER DISPATCH and THE PATENT TRADER have all published articles on the project and have even sent reporters to interview the students.

Achieving the school objectives - The entire school district is involved in the project in several ways. To begin with, all students in the high school and middle school have been given the opportunity to work on the core group or on publicity. A district-wide contest was recently held to name the project. Over 100 entries were received. Ecology teachers have sent their students to project meetings to sit in on discussions and interviews as part of their courses. Students have received credit for extra work in social studies, ecology and media classes for the work they are doing on their own time for the project. Students are being enlisted to work on graphics, music and technical aspects of the final rough edited videotape. Many students are becoming acquainted with the medium of television who may not otherwise have had the opportunity to be exposed to it.

Achieving community objectives - The community is expressing a continuing interest in the project. Whenever students telephone people for interviews they find that there is a wide spread familiarity with what they are doing. Periodic open community meetings are held at the town hall, during which the public is invited to listen to verbal and visual reports from the students on their progress. At these meetings, the public is able to see samples of the student tapes and offer their suggestions and comments. Through the students' constant contact with the community, the public seems to be thinking about environmental issues which they may not have considered before. Upon viewing the final videotape, it is hoped that the community will gain a greater awareness of Yorktown's history and environment.

History of project:
The concept for this project was conceived during the 1973-74 school year. At that time, WNET began putting together a proposal for funds from the U.S. Office of Environmental Education. Several school districts were examined in terms of the historical significance of their towns and their media departments. Yorktown, New York was ultimately chosen because of its signifance during the Revolutionary War, and because it provides a prototype for the "typical" American community sociologically and environmentally. Like many communities in the country, Yorktown was a farm community until the end of the second world war. At that time, the population began to grow rapidly, large industry moved in, and commercial enterprises started to flourish. An advisory committee, consisting of Yorktown educators, environmental experts and historians was formed and the exact content of the proposal formed. Upon receipt of notification of the grant, in July, WNET hired a project Coordinator who then proceeded to organize the activities outlined above. At this point, the students have completed their historical research and a demonstration tape and are in the process of interviewing local businesses and environmental experts to learn about the current ecological state of their town.

A number of environmental programs are currently being aired by WNET's School Television Service. A list of these programs, accompanied by the names of the producers, is provided in the appendix.

The problems that have been encountered have at this point been relatively mild: administrative difficulties, procedural questions involved in working within a school system, equipment problems, transportation problems for the students (there is no public transportation in Yorktown). We have also had to revise our goals in accordance with the amount of money received; cut down on time, eliminate written materials, eleminate transfer of material to 2 inch tape.

WNET's Education Division is currently seeking funds to:
1. Dub the students' rough edited tape up to 2" broadcast standard and edit it on 2" tape.
2. Publish curricula materials for other districts to learn how this project has been accomplished and how they could do a similar one.
3. Involve other public television stations in similar endeavors.
4. Extend the time of the project. At this time, the funds allocated only provide for a six month project, as opposed to the full year originally planned.

At this point, the only publication of materials in reference to the program have been newspaper articles about the students' work, written in the above mentioned newspapers.

Appendix - Environmental Programs aired on WNET/Channel 13 School Television Service

1. Alive and About; WEDH, Hartford, Conn.. (K-3)
2. Animals and Such; Hampton Roads Educational Television Association (K-3)
3. Hodgepodge Lodge: WMPB, Baltimore, Md. (K-3, 4-6)
4. Uncle Smiley: Learning Corporation of America (k-3, 4-6)
5. Basic Ecology; Centron Educational Films (4-6)
6. Community of Living Things; Hampton Roads Educational Television Association (4-6, 7-12)
7. Ecology: You and Your Environment; Ontario Educational Communication Authority (4-6, 7-12)
8. Matter and Motion: WHRO-TV, Norfold, Va. (4-6)
9. Search for Science; WVIZ, Cleveland (4-6)
10. Biology Today; CRM Educational Films, Del Mar Cal (7-12)
11. Man and Environment I; Ontario Education Communications Authority (7-12)
12. Man and Environment II; Miami Dade Junior College (7-college)
13. Man Builds, Man Destroys; N.Y. State Education Department and the U.N. (7-college)

Manual materials for these series are provided to teachers who are members of WNET's School Television Service. These teachers also receive workshops in the utilization of television in the classroom.

-D. Wasserman

PROGRAM TITLE: ADIRONDACK MOUNTAIN HUMANISTIC EDUCATION CENTER

DIRECTOR: Howard Glaser-Kirschenbaum; Outdoor/Environmental Education Specialists, Clifford and Vera Knapp. Upper Jay, New York 12987. (518)946-2206

Adirondack Mountain Humanistic Education Center is:
1. An education retreat and conference center located on 188 acres of land one mile west of Upper Jay, in the Adirondack Mountains of northern New York State. The woods and meadows of AMHEC are crossed by a brook which feeds a big swimming pond. The property borders a large state-owned mountain range.
2. A living-learning community based on the hypothesis that: when placed in an environment rich in educational resources and with a warm, accepting, encouraging atmosphere, people (be they young people or adults) tend to thrive and grow and change and pursue self-actualizing learning goals.

3. A community composed mostly of educators and members of other helping professions, and their families. Also students, parents, artists, writers, and others who feel they could gain something from the Center and/or contribute something to the community.

A number of programs with environmental themes are offered. During the Summer of 1974, such offerings included:
1. Humanizing Education Through Outdoor Experiences.
2. Human Relations Youth Adventure Camp.
3. Human Relations-Wilderness Laboratory.

Humanistic Education Quarterly is published by AMHEC, which also maintains a consultant network of experienced educators available nationally for speeches, demonstrations, or workshops.

-C. Knapp

PROGRAM TITLE: ECO-ACTIVIST CLUB AND RECYCLING PROJECT

DIRECTOR: Vic Brockett, 830 E. 24th, Albany, Oregon 97321.
(503)926-5581

Objectives of Club:
1. To educate the students, parents and community of the pressing ecological problems of their community.
2. To allow the students to study the problems, investigate alternative solutions, make decisions and to actively work for the implementation of those decisions.

Objectives of the Recycling Project:
1. To reduce the amount of materials being deposited in the sanitary landfill.
2. To further a reduction in unnecessary consumption.
3. To promote recycling in Albany.

History:

Three years ago, the club initiated a glass recycling project in a donated parking lot. Through student and community involvement, the project currently is a permanent, full-line recycling center. Students secured the land for the center, designed and constructed an excellent physical plant. Students provide a majority of labor at the center. A local service club provides supervision and labor.

Present Activities:

Our school district offers a nine-week course in environmental science at the junior high level and a course at the high school level. The club has expanded to the other two junior highs in the district and one of the two high schools has representatives work at the center.

Problems:

The recycling project has encountered several problems, among them are:

1. transportation
2. market
3. education/promotion
4. recruiting support from community
5. the need to expand facilities to handle the volume and diversity of materials collected.

The students have managed to solve in some degree all of these problems mainly through educating the public to the need for recycling. The students have presented programs to schools, civic and service groups, appeared on radio and T.V. programs, testified before city, county, and state governmental groups promoting recycling. The problems are not completely solved of course, and new problems arise continuely.

Future Plans:

I. Improvement of center to make processing of materials more efficient.
2. Expanded educational program to get more people involved.
3. Expand the volume of material.
4. To add other types of material to be recycled, e.g., plastics, fine grade paper, lead, oil, etc.

We have not produced publications.

-V. Brockett

PROGRAM TITLE: COMMUNITY EDUCATION PROJECT IN ENVIRONMENTAL SCIENCE

DIRECTOR: Dr. Leroy D. Johnson, Lincoln University, Pennsylvania 19352. (215)932-8300 Ext. 234

An introductory course on the environment. The structure and function of ecosystems; energy sources, supply and transportation; the structure of matter; the lithosphere, atmosphere, hydrosphere and problems of pollution therein.

Although not a laboratory course, field trips, lecture demonstrations or description detection methods of some pollutants as well as film and other visual aids will be used. A term paper will be required.

The course will be interdisciplinary and offered for the general education of teachers, continuing education for adults and will satisfy part of the science requirements for the non-science major.

Guest lecturers will include faculty of the Division.

-L. D. Johnson

PROGRAM TITLE: LAND USE PLANNING CONFERENCES

DIRECTOR: Robert B. Clark, Executive Director, Pennsylvania Forestry Association, 5221 E. Simpson Street, Mechanicsburg, Pennsylvania 17055. (717)766-5371

The primary objective: no one to date in Pennsylvania has asked the people what they think and feel about future land use controls, etc. This is our goal: to provide this link between the people, the government, and politicians.

In 1973 the Governor called upon citizen groups to become involved in Land Use Planning for Pennsylvania. This was the original idea. My own idea was to seek the funds and to provide this request for the Association and for Pennsylvania. We have a P.L. 91-516 grant.

Educational supplements are sent to most of the schools and colledges in Pennsylvania every four months. We attend shows, etc. and give out thousands of pieces of educational material. We also provide "Howdy" the racoon for programs, etc.

Our program is going well. Expenses will run higher for the last two conferences in metropolitan areas than anticipated, especially for facilities. Moderators giving their professional time free will help over-all.

We plan to take this information and submit it to two planning groups: The Department of Environmental Resources, Bureau of Planning, and the State Office of Development and Planning for implementation to their current plan. This information will either confirm or add new life to their program.

We are not anticipating a major effort in publications. We are working with a limited budget and will publish a final report to be sent to all legislators and people requesting same.

The only thing that bothers me in this effort is the many requests I have received from people trying to get part of our funds. This is one bad feature about the grant.

-R. V. Clark

PROGRAM TITLE: ECOLOGY ACTION FOR RHODE ISLAND

DIRECTOR: Harold Ward, 286 Thayer Street, Providence, Rhode Island 02906. (401)274-9429

Ecology Action for Rhode Island has sponsored a report, "A Proposed Plan for Environmental Education in Rhode Island", which has been published by the Rhode Island State Department of Education.

Examples of environmental problems in Rhode Island are specified in this document. Listed are needs of 12 identified target groups (agriculture, business and industry, citizen organizations, elementary and secondary schools, government, higher education, individual citizens, labor, mass communications, professional and trade organizations, religious organization, and youth organizations). Program goals and constraints are identified. A series of recommendations is set forth, along with strategies for implementation. Appendices include the survey instrument used to assess the needs of target groups; lists and descriptions of available resources are provided.

-Susan J. Gomberg
Vice President

ERIC DOCUMENT:
A Proposed Plan for Environmental Education in Rhode Island.
ED 092 399

PROGRAM TITLE: MARYVILLE COLLEGE ENVIRONMENTAL EDUCATION CENTER

DIRECTOR: Dr. A. Randolph Shields, Biology Department, Maryville College, Maryville, Tennessee 37882. (615)982-5181
Tremont-Maryville College Environmental Education Center,
Box 177, Townsend, Tennessee 37882. (615)448-2211

Maryville College's Environmental Education Center, operated in cooperation with the National Park Service, ended the 1973-74 fiscal year in a successful fashion. This was the Center's fifth year of operation, and it revealed the Center's program and financial means are still viable.

A total of 9,026 persons participated at the Center during the 1973-74 fiscal year. This is an increase of 327 over the 1972-73 total. The total number of visitor hours at the Center was 740,373. Again, the majority of the use came from the public school systems. These were from Tennessee, Georgia, Alabama, North Carolina, and Michigan. Sprinkled in the totals were groups that represented colleges, governmental agencies, churches, teachers and independents.

There were additional improvements to the physical plant in 1973-74, including new doors and windows on dorms, new floors in the upper dorm, a new floor in the kitchen, a resealed gym floor, installation of new air conditioner/furnace units, and a new roof on the office building.

Besides the basic school program there were two other major programs in use at the Center.

The 1974 version of Youth Conservation Corps again was a continuing success. This federally funded program offers fifteen to eighteen year old youths opportunities to constructive and beneficial work, plus a program in environmental education. The camp was housed and fed at MCEEC.

This year the camp had a total enrollment of fifty-six youths, the largest camp to date. The enrollees were divided into work crews of five to ten people. This year's crews completed a total of sixty work projects. These projects ranged from litter pick-up to construction of a thirty foot high play structure.

Again, as in past camps, the highlight was the backcountry work. The reason for this was most enrollees enjoyed life in the "spike" camps.

Incorporated into each work project was a certain amount of environmental education. In close support with "on the job environmental education", regular nightly sessions in environmental education were held, including films, guest speakers, and enrollee-suggested topics. The weeks were highlighted by meaningful field trips.

A gym, softball field, football field, arts and crafts room offered the necessary opportunities for a varied recreational program. Along with the above recreational activities, enrollees had games such as monopoly, chess, checkers, cards and ping-pong provided in the dorm. An added treat this year was leather working.

The emphasis of the Summer Wilderness Workshop was on helping participants become more comfortable in and more knowledgeable about a mountain environment.

The age range of enrollees was nine through fourteen.
A staff of seven counselors with science backgrounds, plus one junior counselor, worked with a maximum of 30 students per week for five one-week sessions. Each week the program was adapted to the children both as to age range and prior hiking and backpacking experience.

After familiarizing the campers with equipment and what could be expected on our various overnights, they planned, in groups of no more than three, food, and shelter requirements for their backpacking trips.

The youngest campers backpacked to Turner Shelter for an overnight; the intermediate campers went to both Turner Shelter and the Stocking Branch site, if they so desired; and the oldest campers backpacked for two or three nights, the general route being Anthony Creek-Spence Field-Upper West Prong-New World-Tremont. We always helped the backpackers become more aware of the natural communities along these various routes.

When not on overnights, some groups went on all-day hikes or worked near Tremont on such things as summer stream ecology, "reading" forest communities, and patterns. Evening activities included singing, storytelling, some crafts and square dancing. There was also a daily quiet hour and swimming period for those at Tremont.

The summer program complements the Tremont school year program and yet it is an entity within itself for those who do not have an opportunity to come as part of a class. Participants register for the summer program on an individual basis. This year we had a total of 98 campers representing eleven states.

The weekly fee of $55.00 covered all expenses, including use of Tremont Center backpacking equipment, if the camper did not have those items.

By having a very good counselor-camper ratio we were able to have close rapport with our campers both at Tremont and the trail programs. The only negative response we ever had was they "wish they could stay longer".

-Dr. Ellis S. Bacon
Assistant Director, Programs

PROGRAM TITLE: NON-EDUCATIONAL PRESERVICE: A PILOT STUDY WITH FIRST YEAR ARCHITECTURAL TRAINEES

DIRECTOR: Professor Harold Box, F.A.I.A. Chairman, Department of Architecture, University of Texas at Arlington, Arlington, Texas 76019. Participating Agency: Allied Professional Educational Consulting Service, Box 19647, Dallas, Texas 75219. (817)272-2801

The objective of the program was to present in-coming architectural students with exaggerated learning activities to make "visable" certain concepts and provide an experiential basis for classroom discussion of the ramifications of the concepts, giving the student, in addition, a framework for understanding the personal significance of these concepts and information.

The program was begun because few graduate architects fully realize the extent of their impact on the environment. They fail to take other points of view from different disciplines into consideration and to deal wholly with a situation. The consultants, Allied Professional Educational Consulting Services, had developed a set of learning strategies as a course of study for teachers, adult education groups, university and high school students. This previously written material was adapted for use in the freshman design course with the aid of a grant from HEW.

The pilot program was carried out for one year and the program used for two more, and was not continued this fall.

Problems encountered were: an unfamilarity and resistance to a different mode of teaching; a requirement for small student/faculty ratios was not feasible under present budget restrictions; materials and space logistics.

Evaluation of the program was given in the final report of the HEW Grant No. 036-0-71-4632.

-H. Box

PROGRAM TITLE: LANDSCAPES OF VERMONT: AN ENVIRONMENTAL ANALYSIS

DIRECTOR: E. J. Miles, Co-Director (Operative Officer); Noel Ring, Geography Department, 112 Old Mill Building, University of Vermont, Burlington, Vermont 05401. (802)656-3060

Objectives:
To assess the utility of free and inexpensive government and service organization materials, e.g.: USGS topographic maps, USDA soils maps and aerial photographs, Scout, 4-H, Garden Club, and other publications having a focus on land use in secondary schools and 4-H Club youth-designed projects at approximately 15 pilot study sites; to extend the cooperative expertise of coordinated university services, facilities and programs (College of Agriculture Extension Service, College of Education environmental specialists, Environmental Studies Program, personnel and Geography Department faculty and Remote Sensing Laboratory) to Pilot Study groups; to produce a brief curriculum guide on use of materials: and to conduct a summer workshop for teacher/leaders throughout Vermont in order to extend the findings and benefits of the pilot studies to all secondary youth in the state. This grass-roots project aims at preparing future citizens to direct and cope with local, regional, state and national land use policies and practices.

History:
The project was designed by Noel Ring in Spring 1974 to maximize already existing materials, expertise and facilities available as a method of assessing low-cost environmental studies in a relatively poor, largely rural state where land use and development concerns confront a citizenry located in aesthetically-attractive, rapidly changing landscapes. The State of Vermont is attempting to direct land use development by various political and legal approaches at varying geographic levels, thus the project is designed to supply leaders and youth with locally-oriented materials and guides for evaluating land use conditions

on an immediate basis, within regional and statewide contexts. Becuase the UVM Geography Department has personnel particularly experienced in land use and landscape analysis as well as notable facilities, it seems appropriate as a coordinating center for the project. At present, the co-director is conducting monthly visits and disseminating materials to pilot study sites in rural, suburban and urban schools and 4-H Clubs. Funding is provided under P.L. 91-516.

Problems encountered:
Logistical problems of ordering government materials requiring pre-payment indicate a warning that the official starting date of such projects as this should be July 1st, to assure delivery during September. Among the principal opponents to land use legislation are realtors and developers. Hence to minimize any controversy and to promote interest, a press release clarifying the project is being sent to all media servicing pilot study sites.

Future plans:
Three activities are planned to extend the findings of pilot studies: an evaluation of materials used; a curriculum guide based thereon; and a summer 1975 workshop to disseminate results throughout the state at the secondary level. Application of similar materials to the elementary level is contemplated with development of audio-visual aids and games employing the maps, photos and publications indicated above.

-N. Ring

PROGRAM TITLE: VERMONT INSTITUTE OF NATURAL SCIENCE

DIRECTOR: Sarah B. Laughlin, Woodstock, Vermont 05091.
(802)457-2779

The Vermont Institute of Natural Science is a non-profit institution dedicated to environmental research and natural history education for Vermonters of all age levels and is supported solely by memberships and contributions.

Purposes:
1. To encourage the people of Vermont in their curiosity about the natural world in which we live.
2. To investigate and publicize the special features of the plant and animal life, mountains, and waters which make Vermont unique.
3. To educate towards the best use of Vermont's natural resources by man.
4. To point out man's role in conserving and preserving his environment.

Programs:

1. Annual conference on Vermont birds.
2. Lectures, movies, and slide shows on Vermont natural history subjects.
3. Short natural history courses.
4. Field courses in bird identification.
5. Field trips.
6. Pre-school nature classes.

Resource Center:

Marjorie S. Bragdon Nature Preserve, Church Hill, Woodstock (57 acre nature reserve). Facilities include: natural history library; natural history slide collection; slide programs for use of teachers or ELF volunteers; periodical library; curriculum materials; natural history exhibits.

School services:

1. Educational programs to the schools at the individual school site.
2. Design of school/community environmental education efforts.
3. Resource services for student projects and reports.
4. Mini-courses and special units.
5. In-service training for teachers and volunteers.

ELF project (Environmental Learning for the Future):

1. A program for the elementary schools of Vermont.
2. Training of community volunteers to work in the elementary schools as environmental aides.
3. Specific training for aides in natural history topics and teaching techniques.
4. Development of community/school awareness of natural history.

Research:

1. Bird research program.
2. Coordination of widespread bird-banding program.
3. Computer analysis of banding data.
4. Investigations of life and habits of animals native to Vermont.
5. Natural history surveys.

Publications:

1. Magazine Vermont Natural History.
2. Quarterly record of Vermont bird distribution.
3. Monthly newsletter and calendar of events.
4. Publications on the natural history of Vermont.
5. Research articles.
6. Press releases on natural history subjects.
7. Recordings of Vermont bird songs.

-S. B. Laughlin

PROGRAM TITLE: BURGUNDY CENTER FOR WILDLIFE STUDIES

DIRECTOR: John Trott, Burgundy Center for Wildlife Studies, 3700 Burgundy Road, Alexandria, Virginia 22303.

The Burgundy Wildlife Camp is located on 260 acres near the Cacapon River in West Virginia's Appalachian mountains.

The Office of Education awarded a grant to the camp to develop curriculum materials based on their teaching techniques and the Institute for Environmental Education in Cleveland has worked with camp staff members to adapt teaching materials at the junior high and high school level. The program has been reviewed in a number of publications - Russians and Poles, for example, could read of it in an article appearing in Amerika, the USIA exchange magazine.

Director John Trott says, simply, he teaches with what is at hand. Campers are introduced to the overgrown remains of a farm house, the natural decomposing process in ridding of camp wastes and to the colorfulwisdom of local residents as well as to the surrounding wilderness. At the end of two weeks some of that wisdom and an uncanny amount of knowledge seem to have been absorbed. Individual thought, cooperation and a better understanding of their role in "the scheme of things" have helped these campers to become dependable, aware citizens.

-From: Environmental Education Report
September 1974

PROGRAM TITLE: JEFFERSON NATIONAL FOREST YOUTH CONSERVATION CORPS

DIRECTOR: Jack Turner, Route 1, Wise, Virginia 24293. (703)328-8306; Clyde M. Todd, Jr., District Ranger, Box 1069, Wise, Virginia 24293. (703)328-2931; A. F. Hadacek, YCC Coordinator, U.S. Department of Agriculture Forest Service, Jefferson National Forest, P.O. Box 4009, Roanoke, Virginia 24015.

The Jefferson National Forest's Youth Conservation Corps camp completed its third summer in 1974. This camp was one of the pilot program camps established by the U.S. Forest Service nationwide under the provisions of P.L. 91-378, approved by the President on August 13, 1970.

The purpose of the act is to provide:
1. Gainful employment of American youth ages 15-18 years, during summer months in a healthful outdoor atmosphere.
2. An opportunity for understanding and appreciation of the Nation's natural environment and heritage.

3. Further development and maintenance of the Nation's resources by the youth upon whom will fall the ultimate responsibility for maintaining and managing these resources for the American people.

The 1974 camp provided eight weeks of experience for 24 young people from the state of Virginia. The state board of education recruits and selects enrollees from state-wide applications. This year there were five YCC Camps furnishing 100 slots for a total of 1100 applications received. The State attempts to provide a balanced cross section of income, geographic, radical, rural and urban backgrounds. The camp is co-educational, (we had 12 boys and 12 girls) and food and housing are provided under agreement by Clinch Valley College, on their campus in Wise, Virginia.

The program included three parts designed to fulfill the program objectives outlined above. These are:
1. Individual development by participation in social activities, self governing organizations, individual projects and social experiences in communal living.
2. Productive work. Approximately half of the program time is devoted to a wide scope of work projects covering a spectrum of resource management activities including planting wildlife foods, developing wildlife habitat, completing soil erosion control projects, thinning and release of timber stands, trail construction and maintenance, maintenance and development of public recreation sites, and developing interpretive materials for nature trails for public use.
3. Learning. Environmental educational materials and techniques are largely those developed by the Forest Service in cooperation with schools and other agencies. Education activities are activity centered using non-directive leadership and the discovery approach.

The camp's organization is education oriented. The camp director, three work leaders, and recreation director are all professional teachers from the local areas.

The camp director and work leaders attended an environmental education workshop stressing the facilitator role and field investigation activity techniques. The field activities used were developed and refined over a period of some 10 years by Forest Service personnel, and have been used and adapted by numerous teacher workshops and local school districts.

In addition, we have acquired a modest library of technical reference books and general environmental books for off-hours reading by enrollees.

In relation to most environmental education camps, the living situation on a small college campus here is somewhat unique, and it offers both some advantages and some problems. There are usually some other summer youth activities, and other parallel camp programs on campus during the eight weeks. These provide opportunities for cooperative social activities and experiences. There was some fear that too much of this interchange would dilute the main thrust of the camps program, but it has not proven to be a serious problem. The co-educational camp presents some minor problems for dorm counselors and other staff, but there are more distinct advantages than disadvantages, and the co-educational camp is definitely worth the extra effort.

Some thought has been given to moving the camp into a forest environment in the hopes of enriching the outdoor living experience. This would result in some loss of the social and cultural experiences offered now on the campus. It is a moot point whether the outdoor living is more or less valuable to the enrollee.

Future plans for this camp depend in part on congressional appropriations. Congress has passed a bill to enlarge the YCC Program and we anticipate this camp will continue probably at about the same size as at present.

This local camp has not produced any publications or products of note. We eventually hope to produce some local nature trail guides that can be used by local school systems.

Nationally, the Forest Service has several publications aimed primarily at the YCC Camp Program. Copies are available from our Regional Office, Atlanta, Georgia. A list of the primary publications used is below.

Evaluations of the program have been made for two years by the University of Michigan in addition to statistical data, and attitude surveys conducted by the Forest Service. A Forest Service status report gives some general information and addresses of all regional offices participating in the YCC Program.

Bibliography

1. Environmental Education for the Youth Conservation Corps
Forest Service USDA GPO 929-125
2. Handbook for Environmental Awareness
Forest Service USDA GPO 790-599
3. A Guide for Environmental Education in Youth Conservation Corps Camps
Forest Service USDA GPO 930-661
4. Forest Service YCC Handbook - FSH 1809-11
5. Guidelines for Southern Region YCC Programs
6. Environmental Education Source Book

-A. F. Hadacek

PROGRAM TITLE: WOODLANDS AND WHITEWATER INSTITUTE

CO-DIRECTORS: King Seegar, Daniel Taylor-Ide, Mary Lynn Villaume, John Villaums, Spruce Knob Mountain, Cherry Grove, West Virginia 26803.

The Woodlands and Whitewater Institute is a private, non-profit educational institution, initiated in response to thinking and research of David Kinsey, then a professor of education at Harvard University. It is an outdoor school for people of all ages; children, adolescents, young adults, and families use the out-of-doors at Woodlands as a classroom.

Generally but not always, students are enrolled in programs at other institutions. These institutions contract with Woodlands to run a particular course for a group of their students. Courses range between several days and a month in length. In all courses we maintain a policy of uniform non-discrimination.

We teach outdoors all the subjects normally taught indoors - history, literature, the physical sciences, the social sciences, art. To these are added other subjects not normally attempted in the greater rigidity of the classroom, subjects like - ethics, group relations, self-discovery, sexual role formation, etc.

We believe learning should generate its own motivations. So that students will find the excitement in learning, courses are organized around backpacking, rock climbing, cave exploring or whitewater expeditions. These are real and they feel relevant.

The Woodlands campus covers 400 acres. It has three caves, is surrounded by national forest on three sides and has a couple of streams - one of which is the headwaters of the Potomac. The property is meadowland and spruce forest; a fine lake is nearby. The site, at 4,000 feet, is near the summit of Spruce Knob, West Virginia's highest mountain. The site was used by the Indians for mining arrowheads and is also on the historic Seneca Trail.

The national forest that surrounds the Woodlands campus on Spruce Knob extends for two million acres. The ecology of this classroom is diverse, with forests and streams holding a variety of animal and plant life. Among the wildlife are large populations of deer, wild turkey and beaver. Among the fish, trout and bass are most common. Of the plants there is considerable variety, for the valley ecology is typical southern hardwoods. This changes towards an ecology similar to central Canada as the altitude increases up the mountain sides.

Whitewater courses are run on a number of rivers, two of which are the Potomac's South Branch, a good river for learning on, and the North Fork, site of the Olympic Whitewater trails. Neighboring mountains contain numerous caves. Seneca Rocks and other fine rock climbing cliffs are in the heart of this country and are used extensively.

Woodlands provides food, some clothing, and all essential technical equipment for course activities. Physical facilities are rustic but comfortable. A central building contains sanitary facilities, hot showers, a kitchen and a gathering place. Participants live in large tents, teepees, or round wooden "yurts". On expeditions we live simply but well. Life here is alive and joyful.

We see ourselves as a research outfit, experimenting with and evaluating the potential of the out-of-doors as a classroom. We believe our responsibility towards students is in helping formulate and strengthen values. We believe in community and try to act like one.

-Daniel Taylor-Ide

PROGRAM TITLE: ENVIRONMENTAL EDUCATION INSTITUTE

DIRECTOR: Mr. Philip Stoll, Assistant to the Director, Moraine Park Vocational, Technical and Adult Education, 235 N. National Avenue, Fond du Lac, Wisconsin 54935. (414)922-8611

Objectives:
The overall aim of this project is to develop guidelines for integration of environmental concepts into post-secondary vocational, technical and adult education through a three-week seminar and workshop session for teachers. The guidelines developed would be implemented during the 1975-76 school year. Specific objectives include:
1. Develop awareness, understanding and appreciation of ecological concepts among a broad range of post-secondary, vocational, technical and adult education teachers.
2. Develop guidelines for integration of environmental concepts into post-secondary vocational, technical and adult education curricula.
3. Develop strategies and procedures for implementation and evaluation of the guide by the instructors in each post-secondary vocational, district in Wisconsin.

The people to be affected immediately by this project include approximately 50 teachers from the vocational districts in the state and 5,000 plus students enrolled in secondary and vocational, technical education in Wisconsin. Eventually, the project could affect approximately 3,000 teachers and 45,000 secondary vocational technical students, and 190,000 adults on an annual basis. Very little has been done in Wisconsin to integrate environmental concepts into the above curriculums.

As a result, most of the students and staff have limited knowledge about what and how to integrate ecological concepts into their curriculum. Attitudes of most staff members and students are typical of society in general. Many staff members feel a responsibility to do something about the problem.

This project will provide an opportunity for selected teachers to receive training in environmental concepts, develop a greater understanding of environmental problems, and have the opportunity in workshop sessions to develop behavioral objectives, resources and student activities for integrating these ecological concepts into the various curricula. Materials developed by the participating teacher during the workshop will be more useful when implemented by the local school than those developed commercially. These plans will be continually studied and revised for maximum classroom effectiveness prior to final acceptance for the curriculum. Emphasis will be placed on developing community-oriented student activities.

History:
Similar summer session programs were conducted in 1972, 1973 and 1974. The 1972 and 1974 programs were jointly sponsored and financed by the Wisconsin Board of Vocational, Technical and Adult Education with the Moraine Park Technical District. The 1973 program was federally funded through the U.S. Office of Education, under P.L. 91-516. The program identity is Grant #OEG-0-72-5118 project #R021181. A total of 81 teachers have completed these courses up to the present time.

Present Activities:
The teachers who have completed these sessions have incorporated units of environmental instruction into the courses they teach. The final goal includes the incorporation and implementation of environmental instruction in all courses taught in Wisconsin vocational schools. At this time, measurement tests are in the process of organization by which the effectiveness of the teaching program can be measured and evaluated.

Problems Encountered:
The main problem encountered up to this time has been the slow rate of incorporating environmental units in the various courses. Instructors seem apprehensive of changing present course programs and course content. There is also the likelihood of including more in an already crowded course of study. However, patience must be exercised in that this is a long-time program.

Future Plans:
An application for funding an environmental institute in the summer of 1975 is being presently processed. Efforts are also being made to plan three consecutive summer sessions as a long-time program.

Participating schools continue the environmental emphasis through in-service training programs conducted by previous participants for those staff members who have not been in attendance at previous environmental education institutes. This procedure will result in the expansion of the ecological instruction theme throughout the entire faculty.

Publications:
The three-week environmental education institutes conducted in 1972 and 1973 developed a comprehensive series of concept outlines with individual volumes for each respective year. Approximately 275 were printed and distributed for each of those two years. Copies are available through requests directed to the above address.

-Vernon O. Horne
Project Coordinator

PROGRAM TITLE: COLLEGE OF NATURAL RESOURCES

DIRECTOR: James G. Newman, University of Wisconsin--Stevens Point, Stevens Point, Wisconsin 54481. (715)346-2656

1. Objectives of Program:
    a. To train future public school teachers of environmental education at both the elementary and secondary levels.
    b. To train field professionals in the environmental disciplines.
    c. To provide courses and experiences concerning the environment for students outside the College of Natural Resources.
    d. To provide community services in the environmental fields.
    e. To conduct research to aid in solving environmental problems of this geographical area as well as on a broader scope.
    f. Our efforts are conducted on both the undergraduate and graduate level.

2. History of Program:
The environmental education program at UW-Stevens Point began as a formal major in conservation education in 1946. This program was the first of its kind in the United States. The university at that time was a teacher's college and could offer no other programs than in teacher education. Since that time it has expanded its offerings and environmental education, per se, is only a part of the entire Natural Resources program. Environmental education itself, of course, encompasses all aspects of educating people for work in the environmental field. We have grown from the original conservation major to the point where we now have five majors. At present we have a total of 1,250 students enrolled in the College. The staff numbers 25 and includes specialists in all disciplines in the environmental field. We also have a cooperative fisheries unit supported by the federal government, state government, and the university. A viable unit in our program is the Environmental Task Force. This is a special lab set up to analyze

and make recommendations on problems regarding water and soil quality in the central Wisconsin area. A large number of the teachers of conservation education or environmental education in this state and surrounding states have had their beginnings at this university.

3. Present Activities:
We have been offering seminars on various environmental problems and areas of interest. They have ranged from land use planning problems to a moral analysis of hunting. The seminars will be continued on any subject of concern.

4. Problems Encountered:
One of the greatest problems encountered in this state, which is common to others I believe, is the lack of incorporating environmental education programs in the public school system. The preparation of teachers along these lines has not borne fruit for specialists. Some school systems have developed specific courses or programs in environmental education while others have included environmental education within the structure of other courses. The philosophy or subject of environmental education is taught in these unstructured programs only as well as the interest of the teacher dictates. There is no great effort by administrators to see that these programs are consistent and widespread. We have attempted to survey school administrators to determine their interest and we have been involved with state-wide certification committees to increase interest along these lines. So far success has been limited. We have attempted to acquire financing to provide materials and information centers for teachers within the state but have had very limited success. We have initiated an internship program which appears like it will have more success than any program we have attempted of an out-reach nature.

5. Future Plans:
To intensify our environmental education outreach program we are intending to expand our internship program and to expand our staff to include a member who would have this as his specific responsibility. We also intend to continue to contribute to state-wide efforts to have environmental education be an on-going program incorporated in all aspects of school activities and to develop training or materials centers for school systems within the state.

-J. G. Newman

ERIC DOCUMENT:
The Beginnings of a Nature Center. SE 018 502

PROGRAM TITLE: ENVIRONMENTAL PROBLEMS VERSUS ECONOMICS ASSOCIATED WITH A DEVELOPING INTERNATIONAL PORT AREA

DIRECTOR: Dr. Albert B. Dickas, Center for Lake Superior Environmental Studies, University of Wisconsin, Superior, Wisconsin 54880. (715)392-8101 Ext. 303

The Superior, Wisconsin region lies in a unique geographic position, at the terminus of the St. Lawrence/Great Lakes shipping lane. In spite of this advantage the local population base has been in a general decline since the 1920's. During the 1960-1970 census period, its base again decreased from 33,000 to 30,000. This decline is coupled with historically high unemployment rates (presently 10%) and below average incomes.

Within the past nine months, with the announcement of over $75 million in new waterfront construction plans, the citizens of Superior have reason for optimism. These new plans include a coal dock (Montana low sulphur coat), an iron ore dock (taconite from the Iron Range of Minnesota) and an expanded oil dock (semi-processed Canadian crude). All these products will be shipped east and south through the Port of Superior harbor.

The overall objective of this study is to work with and educate the local public so that a proper balance between the environment and economic progress can be achieved for the future betterment of all local citizens, the target population.

History: This program is being conducted in equal partnership with the Superior Chapter of the League of Women Voters. A brief history of both groups is as follows:

> League of Women Voters (Superior). Organized for five years, the Superior chapter is the fastest growing in membership in the state of Wisconsin. Since its creation it has been heavily involved in community-problem affairs, especially in the fields of environmental control, harbor pollution, rat control, and public education.
>
> The Center for Lake Superior Environmental Studies of the University of Wisconsin, Superior, organized in 1967, is the applied research arm of the university. Over a period of seven years it has been involved in over $750,000 worth of environmental data collection, water and air analysis, impact report writing and public education.

The talents of both of these groups is brought together in this unique experiment in public education.

Present activities: Project is presently in earliest stages of organization.

Problems: No problems encountered to date. Plans for the future are in the process of development.

-A. B. Dickas

ERIC DOCUMENTS:

1. Wisconsin's Lake Superior Basin Water Quality Study. SE 018 426
2. Wisconsin's Lake Superior Basin Water Quality Study. Supplement. SE 018 427
3. Water Quality in Ashland County, Wisconsin, Its Understanding, Preservation, Utilization. SE 018 428
4. Water Quality in Bayfield County, Wisconsin, Its Understanding, Preservation, Utilization. SE 018 429
5. Water Quality in Douglas County, Wisconsin, Its Understanding, Preservation, Utilization. SE 018 430
6. Water Quality in Iron County, Wisconsin, Its Understanding, Preservation, Utilization. SE 018 431

Appendix:

State Coordinators for Environmental Education

APPENDIX

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